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Editorial

Dear authors, reviewers, and readers

It has been a month since I was given the privilege to serve as the Chief Editor of the International Journal for Innovation Education and Research (IJIER). It is a great pleasure for me to shoulder this duty and to welcome you to ***THE VOL-2, ISSUE-3 of IJIER*** which is scheduled to be published on **31st March 2014.**

International Journal for Innovation Education and Research (IJIER) is an open access, peer-reviewed and refereed multidisciplinary journal which is published by the International Educative Research Foundation and Publisher (IERFP). IJIER aims to promote academic interchange and attempts to sustain a closer cooperation among academics, researchers, policy makers and practitioners from a wide range of disciplines, which contribute to state of the art in science, education, and humanities. It provides a forum for the exchange of information in the fields mentioned above by welcoming original research papers, survey papers, and work-in-progress reports on promising developments, case studies, and best practice papers. The journal will continue to publish high-quality papers and will also ensure that the published papers achieve broad international credibility.

The Chief Editor, appointed by the Associate Editors and the Editorial Board, is in charge for every task for publication and other editorial issues related to the Journal. All submitted manuscripts are first screensed by the editorial board. Those papers judged by the editors to be of insufficient general interest or otherwise inappropriate are rejected promptly without external review. Those papers that seem most likely to meet our editorial criteria are sent to experts for formal review, typically to one reviewer, but sometimes more if special advice is needed. The chief editor and the editors then make a decision based on the reviewers' advice.

We wish to encourage more contributions from the scientific community to ensure a continued success of the journal. We also welcome comments and suggestions that could improve the quality of the journal.

I would like to express my gratitude to all members of the editorial board for their courageous attempt, to authors and readers who have supported the journal and to those who are going to be with us on our journey to the journal to the higher level.

Thanks,

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Table of content

Paper ID	Title	Page
151	**Teaching Managing Sustainability to Non-business Undergraduates An Exploration in Fluidity Teaching** ***Authors:*** *Nancy A. Hubbard*	1-9
152	**THE SEQUENCE OF ELECTRONIC SERVICE QUALITY ON CUSTOMER SATISFACTION THEORITICAL STUDY** ***Authors:*** *Fahd AL-Farsi, Abdullah Basahel*	10-24
153	**A Pedagogical Approach to Teaching a First Course in Engineering Electromagnetics** ***Authors:*** *Habib Rahman*	25-29
154	**Educational Gaming and Use for Explaining Alternative Energy Technologies** ***Authors:*** *Kenneth A. Ritter, Terrence L. Chambers*	30-42
162	**Cultivating a Community of Truth Through Critical Pedagogy When Faced with Resistance Teaching My Gender Students How to "Ride the Bus"** ***Authors:*** *Kevin T. Jones, Carol Brazo*	43-55
155	**Top Leaders Attributes in Malaysian Higher Education Institutions Effect on University Innovation** ***Authors:*** *Mafuzah Mohamad Salina Daud, Mohd Zainal Munshid Harun*	56-71
156	**Co-producing knowledge: Academics and non-academics partner to build synergistic teams to produce sustainable pathways to advance the emerging field of bamboo farming, manufacturing and processing in Alabama** ***Authors:*** *Marcy L. Koontz*	72-83
157	**ANALYSIS OF MODES OF ENTRY AND LEGAL STATUSES OF AFRICAN IMMIGRANTS IN THE UNITED STATES** ***Authors:*** *Monica Nyamwange*	84-91
158	**Double Helix Structure and Finite Persisting Sphere Genetic Algorithm in Designing Digital Circuit Structure** ***Authors:*** *Nurzanariah Roslan, Karmila Kamil, Chong Kok Hen*	92-107
159	**THE ROLE OF MARKETING AUDIT AND VALUE OF INFORMATION** ***Authors:*** *SILVIA KLINČEKOVÁ, JARMILA ŠALGOVIČOVÁ*	108-114
160	**DO THE "APPLES" BAD? AN EXPLORATORY STUDY ON STUDENTS' MORAL COGNITIVE ABILITY** ***Authors:*** *SURAIYA ISHAK, AHMAD RAFLIS CHE OMAR, KADIR ARIFFIN, MOHD YUSOF HUSAIN*	115-125
161	**"Excellent" or "Outstanding" A Case Study of My Son's Intercultural Adaptation** ***Authors:*** *Xiaochi ZHANG*	126-131

Teaching Managing Sustainability to Non-business Undergraduates: An Exploration in Fluidity Teaching

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Abstract

This paper reviews the challenges and opportunities facing business and environmental management education while outlining pedagogies recommended for creating an environment which encourages transformational education. This approach, deemed 'fluidity teaching' is used to teach managing sustainability to non-business majors with the objective of promoting critical thinking and heightened problem solving skills. The course positively impacted student's awareness of sustainable management complexities and solutions. Techniques utilized help students gain ownership of their learning process and knowledge gathering thus allowing them to make multidisciplinary linkages and offer complex suggestions across boundaries. Finally, students' assessments indicated they felt they developed critical thinking skills which lead to rich discussions and 'thinking for themselves' in determining viable solutions in sustainability issues.

Introduction: Education at a cross roads

Business education is at a crossroads—the issues facing modern day enterprises are far more complex than ever before. The speed of change only exacerbates the inability of managers to fully grasp the diverse complications seen in their daily operations. Rapid globalization, the desire for greater innovation, the need to facilitate horizontal linkages and communication, and the ability to manage organizations sustainably are only a handful of issues facing modern executives.

Business education is struggling to educate future managers to deal effectively with this modern day world (Dehler et al, 2001; Kearins and Springett, 2003) instead, turning out students who have been taught to believe that management is a defined science, with pat answers to difficult questions. Paradoxically as management issues have become more complex, business teaching has become more simplified as rote memorization has become the norm. Put simply, management education has fallen into the 'hegemony of simplification' (Dehler et al, 2001. p. 499). In addition, business education is seen as teaching students the wrong things. As Dehler et al suggest, what is needed is for:

> 'Management education to become both transformational and emancipatory in order to adequately prepare students for the turbulent new century..the complexity of managerial thinking and action needs to be reduced with sufficient clarity that students can comprehend its essence, while simultaneously raising their own level of complicatedness in order to grasp that extant complexity' (2001, p.494).

A prime example of a multifaceted business issue facing management today is sustainability. Numerous stakeholders and multidisciplinary complexities combine to create a profoundly difficult managerial quandary. To exacerbate the problem, management is often seen as a contributor to problem and with it, management education (Naeem and Peach, 2011). Instead what is being sought is a transformational reassessment of education's approach to sustainability management where those entering the business world become the solution instead of propagating the problem. This requires a fundamental shift in educational learning patterns, innovation, creativity, and issue ownership; however, thus far, this is simply not happening on a large scale (ibid).

Emerging solutions to creating transformational environmental leadership

There is a developing consensus, however, on those pedagogies that better equip graduates to face today's challenges especially that of managing sustainability. These include: critical thinking, active learning, classroom de-centering, interdisciplinary approaches, and participatory action research. Two more, 'Ecollaboration' and the 'Head, hands, heart' approach incorporate several methodologies discussed above and will be briefly outlined in turn.

Critical thinking espouses the robust analysis of all available options before choosing an appropriate solution. Fundamental to this approach is reaching a decision only after one has considered and evaluated all the available options and their relevant implications (Spencer and Hatcher, 2000). In arriving at that measured judgment, all sides of any argument must be considered and accepted or refuted creating a platform for discussion. In most cases the final answer is less important than the learning journey it facilitates as the process acknowledges competing views many of which have viable support, as well deeper learning.

Active learning, also known as Learner Agency and participative learning, encourages student to not only helping shape what they learn, but doing so by taking an exploratory and investigative approach (MacVaugh and Norton, 2011). It is particularly powerful in those subjects where students can explore new ideas, incorporate creative solutions, and concentrate in those areas in which they are most interested (ibid.). A move towards student-led learning is fundamental to this approach with greater student-teacher collaboration as students are given the freedom to explore related topics that are of special interest (Dopico and Garcia-Vasquez, 2011).

Active learning has been successful in increasing student responsibility for their own learning (Parker, 2010; Fortuin and Bush, 2010), increased personal motivation (MacVaugh and Norton, 2011), and improved subject matter understanding (ibid.). Thus, 'successful learning occurs when learners have ownership of their learning, when they understand the goals they are aiming for, when crucially they are motivated, and have skills to achieve success' (Şeker and Kömür, 2008. P. 390).

A decentered classroom is also seen as a positive methodology in teaching sustainability being one 'where faculty and student stand on the same epistemological ground' of mutual learning (Dehler et al, 2003; p 502). Students' interests and areas of focus are developed by the students themselves and facilitated by the faculty, but not necessarily taught by the faculty. The coursework remains somewhat fluid, where texts and other inputs are used by students to form their own opinions, not regurgitate those espoused by the teacher. Thus, teaching environments flourish where 'some relinquishing of control and facilitating a learning environment where there will be some rules…but also some freedom for students to engage in defining appropriate learning goals and assessment activities for themselves' (Kearins and Springett, 2003. p. 196).

An interdisciplinary approach is seen as crucial for successful sustainability management (Welsh and Murray, 2003; Pretorius, 2004; Bacon et al., 2011) where students learn not only by a variety of methods (lectures, texts, first hand experiences, field trips) but across a host of disciplinary perspectives. Environmental science, biology, political science, business, economics, philosophy, geography, and ethics all combine creating a complex and integrated sustainability landscape; to omit disciplines oversimplifies the overall learning experience.

'Head, heart and hands' and 'ecollaboration' encapsulate many approaches mentioned above into holistic methodologies encouraging transformational sustainability learning through personal experience and growth (Sipos et al, 2008). These processes use cognitive engagement, practice skill development, and encourage attitudes into actions with the ultimate goal of profound attitude shifts (ibid).

These various methodologies are not unrelated—but rather share a common theme promoting:

- an environment of exploration and journey for all involved,
- where all well-considered opinions are valid,
- students take responsibility for their own learning and have input into developing it, and

- a holistic approach that encourages information from as many diverse experiences, sources and disciplines as possible.

This pedagogical approach was what chosen when Goucher College became one of the first colleges in the United States to offer a sustainable management practices course to non-business undergraduates in 2009. 'Introduction to Managing Sustainability' was taught utilizing this holistic approach; its methodology is discussed below.

Case background

Goucher College is a primarily undergraduate liberal arts college of 1500 students located outside of Baltimore, Maryland. Its motto, 'Transcending Boundaries', is core to its ethos as Goucher differentiates itself by seeking out transformational strategies for its students. It was the first liberal arts college in the United States to require students to study abroad in order to graduate in 2006. Similarly, it began adopting sustainable practices long before it was fashionable. The resulting ethos of sustainability permeates the campus. It is one of only 21 colleges to have achieved The Princeton Review's Green College Honor Roll's highest marks. Goucher has on its campus a LEED certified 'Gold' building and it most recent renovation exceeds the LEED Silver certification guidelines; indeed Goucher has pledged to build and renovate all future buildings to LEED standards. In addition, the campus food service is sustainability minded, serving locally grown produce whenever possible and composting food waste. There is a residential 'Green House' on campus and vegetable and fruit gardens are used to supplement campus' dining requirements. The college has hosted a local farmer's market and showcases thought provoking environmentally based movies to promote debate and awareness to students and staff alike. Finally, relevant environmental speakers are frequent guests and over the past three years have included Robert Kennedy Jr., Jean-Michel Cousteau, Jane Goodall, and Michael Pollen.

As part of its commitment to environmental issues, Goucher began increasing its environmental science academic offering. Both a chair and major in environmental studies were established in 2010. Since 2009, all students must complete an environmentally focused class as part of their liberal arts education requirement regardless of major. To fulfill this need, Goucher's business department began offering a 100 level course, 'Introduction to Managing Sustainability', open all students regardless of major.

Challenges of teaching the management of sustainability

There were several challenges associated with teaching management of sustainability. Firstly, there were no known templates—teachers at Goucher were unaware of any similar course offering in the United States. While there were graduate courses, those catered to MBA students who already had a strong grasp of business practices while this course required students to become familiarized with business fundamentals before learning about their application to sustainability. This also meant there was no suitable textbook. This initial 'problem' of no textbook actually led to the unusual course design and ultimately has been a key strength.

The second challenge was pace of change within the business world regarding its 'greening'—information was constantly changing and considerable flexibility was required to stay current on the various topics. It also made it impossible for one professor to be an expert in all areas covered. Because of this, the role of professor became more of a coordinator and facilitator of knowledge thereby lessening the power authority within the classroom; this fit nicely with the classroom decentering approach discussed above. At least once a term, a student taking the class has been expert in one of the subjects covered; as will be seen later, those students become co-teachers for that class.

Thirdly, there was an enormous diversity of students taking the class. Firstly, the level of understanding and enthusiasm of students in terms of the various modules of information being taught differed enormously. Business

majors and minors understood the business practices thoroughly yet many had no grounding in sustainability issues. Likewise many environmental studies majors understood environmental issues but not business. Some students had a fervent passion for some sustainability topics but less knowledge in others while still others had no knowledge or burning interest in any of the modules and were taking the course simply to fulfill their liberal arts requirements.

The dispersion is seen in the majors of those taking the class. The ratio of business majors to non business majors has dropped during the tenure of the course from one-third to roughly fifteen per cent of students as non-business majors realized the course was truly an introduction to management and that pre-existing business knowledge was not required. To date, students with twenty nine different majors have taken the class including: sciences (pre-med, biology, chemistry, environmental science), education, arts (dance, theater, studio, historical preservation, music), humanities (English, communications, women's studies, peace studies, Judaic studies), social sciences (sociology, business, economics, psychology, political science, international relations, arts administration) and languages (Spanish, Russian, and French) with a further twenty per cent of students being undeclared. In addition, classes are generally split evenly between students in each grade.

This student diversity influenced the unusual course design with the objective of gaining greater subject matter tailoring. This allows students who are more advanced or passionate to push ahead in their areas of interest, thereby creating greater student 'ownership' of their personal learning. This supported the participative learning approach discussed above.

Course design

The course is divided into four modules:

1. Introduction to management practices (twelve hours). The basics of management are broadly covered including strategy, organizational structures, marketing, finance, human resources, and information technology.
2. History of the US green movement with special emphasis on non-profits and global legislation (twelve hours). The green movement from its early pioneers is discussed through the 'Age of Environmentalism'. Special emphasis is placed on the global historical context and the development and management of non-profits. Goucher graduates an inordinately large percentage of students who work in non-profits; the business fundamentals learned in the first module are applied and reinforced through analyzing green non-profits as businesses.
3. What businesses are doing to increase their sustainability efforts (thirty two hours). This module analyzes different industries and businesses as they become more sustainable (discussed below).
4. Global warming and forms of green energy (14 hours). Global warming and different alternative energy options including 'clean coal', nuclear, gas, wind, hydro, solar, algae and fusion are discussed. Initially potential long-term solutions such as algae and fusion weren't covered although at the students' requests, they are now included.

In light of different audiences and subject matter and fuelled by no textbook and set structure, a fluid approach to delivering the material is taken thus prompting this author to classify this approach as 'fluidity teaching'. The four modules are pre-agreed and some are more structured than others; for instance the first module ('Business 101') is a standard introduction to business practices while modules two and four are somewhat structured. The ability to tailor learning to interests is achieved through more exploratory homeworks and classroom discussions. Module three, however, is not decided until after the first couple weeks of class as more information has been gathered and subject matter can be tailored to meet the students' interests.

Initially students are asked to put forward their expectations of the class, why they are taking it, what they hope to learn, and any subjects in which they are particularly interested. From this initial information, it becomes clear there are some students who were already 'experts' in their fields. Over the years this has included students who:

- worked in organic farming,
- was certified as a 'green' HVAC engineer,
- helped take their family restaurant 'green',
- led green initiatives for Starbucks,
- studied the impact of ecotourism on the Costa Rican economy as her study abroad project,
- wanted to open Baltimore's first 'green' mortuary,
- studied the impact of phytoremediation (using plants to clean biohazards) and
- participated with her family in a green car competition.

Each year, a list of potential topics is assembled which includes previously covered topics as well as those specific to the talents of each class' members. Additional topics are requested from students. Students are, at first, relatively reticent about voicing their preferred topics although by waiting a week into the semester students are more communicative and vocal as they experience, and get used to, the different class format. Usually between twelve and fifteen topics are put forward, many from the initial list or because of access to an interesting speaker or field trip, while students nominate other topics they find compelling. Students then vote on their choices and the most popular topics are covered. Every semester has brought at least one new topic. Topics have included:

- food production
- retail
- hotel management
- restaurants
- commercial and residential construction
- fish farming
- environmental remediation
- defense industry
- big business's changes to become more green and its impact on suppliers
- green packaging
- careers in sustainability
- clothing production
- urban planning
- cap and trade legislation
- cars, and
- ecotourism.

Not coincidently, some of the topics covered included those where students taking the class were experts. In these cases, the student co-taught that class relaying his or her experiences. In one case, eco-tourism, the now former student comes back and continues to co-teach that class. In several cases the student/teacher was tentative regarding his or her expertise but in all cases, gained confidence as he or she discussed experiences and answered classmates' questions. Students learning from their peers had a positive impact on classmates who began to understand that they can be experts and make a difference at a relatively young age. No student/teachers got extra credit for participation nor did any request it. It was just seen as 'part of the package' of taking the course. This approach supports the pedagogical approach of utilizing participative teaching within a decentered classroom.

To further support the multidisciplinary approach, classroom discussions are linked to fieldtrips and external speakers. Goucher College's LEED Gold building is a very popular field trip as students tour the building's inner workings to truly understand that 'green' building is more than just superficiality. In addition, the college has hosted a farmer's market on campus where during one class, students visited with local organic farmers and discussed farming issues; this was coordinated with a student/teacher leading a discussion about working in organic farming. On another occasion students met with the sustainable catering company who provides Goucher's food and discussed green initiatives. This supports the 'hands, head, heart approach' of teaching where students benefit from a multi-faceted approach to learning about the subject.

Due to the class' diverse subject matter, it is impossible for one individual to single handedly teach the entire course. Instead, both internal and external speakers are utilized including: a speaker from the University of Maryland's revolutionary fish farming laboratory, a remediation industry expert who talked about how 'green solutions' are being found to clean ex-military sites, a Dow executive who discussed the company's ' greening', and a restaurateur who took his business green (co-presenting with his son who was taking the class). Internal speakers are also encouraged and include a class led by an environmental studies professor on Understanding Global Warming. The use of multiple perspectives and external resources supports the 'ecollaborative pedagogical philosophy espoused for sustainability teaching (Welsh and Murray, 2003).

The course topics are also coordinated with related on-campus events. For example, the screening of Food, Inc corresponded with class discussion on sustainable food practices. Robert Kennedy, Jr's lecture on West Virginia strip mining was coordinated with class discussion on the myth of 'clean coal' and its alternatives. While students do not receive extra credit for attending, on average one-third to one-half of students attend related external events while taking the class.

Assessment techniques

Several assessment means are used throughout the term. A standardized pre- and post-class assessment administered to all Goucher students as part of their environmental liberal education requirement was implemented during the course's second year. It provides an excellent benchmark and learning tool linking the class' issues to the wider sustainability debate. Of the 172 students who have taken the class, all but two have has passed the assessment; fewer than 20 percent were able to pass the assessment at the class' beginning.

The remaining class assessments are broken into four parts:

- homework (25 % of the grade)
- two fact based tests—one on management practices and another on business sustainability practices (each 25%)
- final project (25 %) and a
- final reflection paper.

Because of the wide spectrum of subject knowledge and interest, students were given a large degree of freedom when choosing homework content often being asked to pick an individual, industry, or non-profit of their choice and conduct exploratory research. For example, when studying pre-World War I 'green pioneers', students were tasked with choosing a person to further explore. The results are always creative and thoughtful. An excerpt from one student's homework highlights the point. The homework began,

> 'I know that this may not have been what you expected, and before I start this paper I understand that the two people I am about to cover were not traditional environmentalists, but I feel like in a class like this you will be open to creative responses. Accordingly, I, as an English Major and weirdly interested in old literature saw this assignment and my mind ran to these two people. Though they are not "traditional environmentalists," they were "early green pioneers," in a creative but applicable sense of the term.

> Finally, before I break any more rules, I know the assignment calls for one person, but these two go so well together and are a natural pair, so I could not write about just one.'

The student went on to write about William Wordsworth and Samuel Coleridge.

Homeworks are also designed to encourage thinking and choices rather than find a 'correct answer'. Another example asks students to analyze the Picken's Plan, its pros and cons, and whether or not students would support it. Their actual position is not the issue—it is digesting the information and making an informed opinion that is the real lesson.

Throughout the class students are encouraged to submit related articles and web links which are discussed at the beginning of every class. Approximately two-thirds of students submit some kind of discussion article or link during the course of the year for which they receive no additional credit. Former students continue to submit related links years after they finish the course.

Tests are a combination of recalling course information and critical thinking. A sample test question is, 'Do you agree or disagree with the statement that hunters make the best conservationists?' For the student to get full credit, they must define 'conservationist', give three examples of hunter/conservationists, take a position and outline their argument. Those who follow the methodology get full credit regardless of their position.

The year end has two assessment tools—a reflection paper and final project. The reflection paper is the final homework and counts as three homeworks—asking students to reflect on their semester and how, if at all, this course has changed their views and behaviors in addition to providing critical feedback. The paper reinforces the critical learning perspective and ensures students consider, at least fleetingly, how the course impacts their future decision making. The feedback has been strongly positive with a significant number of students stating how they initially took the class to fulfill their liberal education requirement and have, surprisingly, found their perspectives fundamentally changed in the process.

The final project synthesizes many of class concepts as students form groups and choose a low performing company from the Newsweek Greenrankings. They then analyze the company's strategy and marketing, compare it to its competitors in terms of sustainability, and suggest innovative sustainability solutions (with their costs and benefits). Finally, they are asked to find a green non-profit with whom the company should partner and support their choice. The teams present their findings on the final day of class. The project amalgamates the course elements and ensures collaboration amongst classmates—anecdotally students report that the final project highlights the complexities of implementing sustainable initiatives across diverse stakeholder groups. It also reinforces the multidisciplinary and critical learning perspectives through an 'ecollaboration' approach.

At the course's end, students submit course evaluations assessing the course's impact. The results have been very positive (see Table 1) with the majority of students viewing the course in an affirmative light in terms of impact, interest, and critical thinking. As seen in Table 1, the biggest difference is seen in the class promoting dialogue and discussion as well as encouraging students to think for themselves. In both cases, the class outperforms its departmental peers.

Insert Table 1

Conclusion

The effective teaching of sustainability management lends itself to a methodology of collaboration, critical thinking and exploration rather than the memorization of rote fact or regurgitation of the 'right' answers. This methodology, 'fluidity teaching, provides an optimal pedagogical method for creating transformational learning relying heavily on existing pedagogies including critical thinking, the decentered classroom, 'hands, head and heart' and 'ecollaboration'. Through the use of critical thinking, active learning, an interdisciplinary approach as well as a decentered classroom, a transformational learning experience was delivered. It would be untrue to

say it was transformational for every student but for a significant portion, their perspectives in terms of sustainability were changed through their learning experience.

This research does have some limitations. Goucher's sustainability environment has tremendous administrative support as well as internal resources of on-campus guest speakers, visiting speakers, and potential field trips. The ability to provide this course in less ideal circumstances would be far more challenging. The research also highlights only one template of a positive learning environment—no doubt it can, and will be, improved upon over time. But for now, it adequately meets its objective of creating an environment promoting transformational learning in a complicated world.

Goucher College has been able to provide its students a highly positive learning experience in terms of truly managing sustainability. The real test will be if those students channel that knowledge into transformational career and personal choices. These students are, however, some of the first in the United States to be given this perspective and only time will tell in terms of the longer term results.

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Table 1. Student reported assessments in various categories Fall 2009-Fa02013 (n=125)

	Class assessment ranking (1 to 5, 1 being low and 5 being high)	Business course rankings
Does the written work contribute to the course understanding?	4.66	4.61
Does the course encourage you to think for yourself?	4.71	Not available
The class encouraged discussion and dialogue?	4.90	Not available
Overall course rating?	4.71	4.25

*This number differs from the number of students having taken the course as not all students who took the course completed course evaluations

THE SEQUENCE OF ELECTRONIC SERVICE QUALITY ON CUSTOMER SATISFACTION: THEORITICAL STUDY

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ABSTRACT

This study investigates the impact of electronic service quality dimensions on customers' satisfaction. Finding indicates that customers are satisfied in three dimensions: information, ease of use and security/privacy while they answer with "Neutral" for the other dimensions: design, reliability and interactivity/personalization which in turns did affect the overall satisfaction. Furthermore, the recommendations of this research were as follows:

- *Organization should give more attention to its e-service quality especially in the three dimensions which did not meet its customer's expectation which are: interactivity/personalization, design and reliability.*
- *However, as the users become more mature, they know exactly what they expect to be e-service quality factors. Therefore, It will be valuable to find out the solutions to reduce failures in firm electronic service quality and fill the gap between what is perceived by the customers view through in depth qualitative inquiry. The solution will include the integration of internal functional departments and external integrations of channel. Nowadays, called customer relationship management (CRM) and supply chain management have become the main factors.*

1. INTRODUCTION

The growth of worldwide internet commerce has been mainly due to the demand of customers who technologically savvy and informed about products and services. Consequently, the competition has increased rampantly among Internet companies. In addition, there are applications that use search engines and offer price comparisons among top brands on the web; this has caused many companies to fight for top positions using competitive prices and highest quality of products. Thus, the non-price related aspects such as customer relations are becoming utterly important for internet companies.

As Internet shopping gradually moves from an innovation to a common way of shopping, the quality of the websites will play an important role in the differentiation of the sites. High quality sites will be capable to attract more browsers and customers than the competing sites of poor quality because the quality built a sustainable competitive advantage. According to Yoo & Donthu (2001) Internet shopping sites can be defined as the Web sites of retail outlets where customers can browse, evaluate, order, buy a product or a service. In summary, Internet shopping sites are online versions of the physical stores where all operations and its relevant activities take place online cyber space. Literature on the quality of traditional retail stores confirmed that consumers use quality of the store as an indication of the quality of products from stores (Dodds, Monroe & Grewal, 1991). Likewise, the high quality Web sites will attract more attention and visits from consumers by implying that its products are of high quality. In addition, when consumers are satisfied with a high quality Web site, they inspire active and positive word-of-mouth for the site. Little research has tried to develop a sound instrument to measure the perceived quality of an online shopping site. According to Yoo & Donthu (2001) the lack of action has been a barrier to monitor and improve site quality and to investigate the relationship between customer satisfaction

and behavioral intentions. The measurement web site quality is in its infancy stage and there is no adequately accepted and tested scale. (Zeithaml, et al., 2002a). Various measuring instruments have been developed with the objective of evaluating the quality of web sites (Aladwani & Palvia, 2002; Wolfinbarger & Gilly, 2002). Zeithaml, et al. (2002) propose an excellent review of most of these studies and summaries the main dimensions of web site quality as information availability and content (information quality), ease of use, privacy/security, graphic style and fulfillment.

The quality of web sites has become a key indicator of the good that a company can satisfy their customers. Another new challenge is the rapid increase of the expectations and the level of sophistication of the e-customers. In recent years, research efforts have focused on understanding how the e-customers perceive the quality of electronic services and how these perceptions translates into customer satisfaction and behavioral intentions. Adding to the challenges of managing e-customers, it has become important to understand how individual customer differences in terms of information technology skills affect their online experience, behavior and attitudes (Udo, Bagchi, & Kirs, 2008).

The main objective of this study was to identify and explore the dimensions of service quality in an online context and discover how these dimensions helped the customer satisfaction through the investigation of: how firm perform in terms of the electronic service quality dimensions; which, if any, of the service quality dimensions are more significant in achieving service quality; lastly to investigate how electronic service quality can be improved.

2. Background of the Study

Online shopping is becoming increasingly common as a mode of purchase. At the beginning of e-commerce was thought that success was guaranteed simply with your presence online and offer low prices. Currently customer service has proved to be a key element for the achievement of good results on a Web page (Zeithaml, Parasuraman & Malhotra, 2002b). In this context, People's life has been changed in different communities due to the internet which led to significant and new concept "technologies and services ". Most of successful companies understood that the low price and having a web site on the internet does not guarantee the success unless they provide high-quality e-service, which in turn becomes the main challenge for many organizations. The study of the service quality of websites is new while the traditional service quality has been studied extensively over the past two decades. Whereas, the traditional service quality is defined as "overall evaluation or an attitude to superiority of the service" Zeithaml et al.(2002) defined the electronic service quality as "the extent to which a website facilitates efficient and effective shopping, purchasing and delivery of products and services"

In response to the fast-paced information age, many airlines have worked hard to develop their own web sites to facilitate e-commerce transactions. In terms of online shopping versus offline purchase, online shoppers benefit from receiving information directly from the web site without having to look for a sales person (Zeithaml, Parasuraman & Malhorta, 2002a). Internet users make use of the web in order to minimize their costs of search, which have been identified as one of the main advantages of online shopping (Lynch & Ariely, 2000). A large amount of information available for free - if they are well organized and easily accessible - is mentioned frequently by consumers as an important reason for shopping on the Internet (Vanitha, Lepkowska & Rao, 1999). Wolfinbarger and Gilly (2001) state that the availability of information is one of the most important aspects of online purchase. Therefore, when an airline website has been designed, ample, accurate and relevant information must be available to customers to enable them to compare products so they can make a decision / choice. Customers may not make an informed decision if the site contains insufficient information.

Consumer expectations are not being met to perceptions of the quality of the online service on the Internet and the interaction human-to-human the technical and logical sides of an online transaction take on a heightened importance for the customer (Long & McMellon, 2004). This could lead to a decline in customer satisfaction, and could ultimately affect sales since there is no human interaction when an online transaction is carried out which makes it even more important that the organizations to ensure that your web site is efficient. For example, If the information is not available for the client, no comparison of other websites will be possible, which could result in that user leave the transaction / sale.

3. THE PROBLEM AND ITS SETTING

Literature on service marketing includes many investigations on the relationship satisfaction of quality of service, both online and in traditional contexts (Wolfinbarger & Gilly, 2003). Satisfaction is an ex post assessment of customer service experience, and it is captured as a feeling positive, indifferent or negative. Oliver (1997) defines satisfaction as "the perception of pleasure fulfillment of a service" and loyalty as "deep commitment to the service provider". Customer satisfaction has to be seen in the same way as the quality of the service. The quality of service does not necessarily lead to customer satisfaction and the satisfaction of the customer is not necessarily a precursor of the quality of the service (Gardiner, 2004). Furthermore Gardiner (2004) adds that customer satisfaction is a measure of specific short-term transactions, while the quality of the service is a long-term total evaluation of a service. Hence the perception of service quality by a customer is formed over time through a number of relations during which was either satisfaction or dissatisfaction (Hoffman & Bateson, 2002). In the e-commerce context, there is a positive link between six electronic service quality's dimensions (information, ease of use, design/graphics, reliability, security/privacy, and interactivity/personalization) and customer satisfaction Wolfinbarger and Gilly (2003).

4. WHY SERVICE QUALITY IS IMPORTANT

Online shopping is becoming increasingly common as a mode of purchase. At the beginning of e-commerce was thought that success was guaranteed simply with your presence online and offer low prices. Currently customer service has proved to be a key element for the achievement of good results on a Web page (Zeithaml, Parasuraman & Malhotra, 2002b). In this context, People's life has been changed in different communities due to the internet which led to significant and new concept "technologies and services ". Most of successful companies understood that the low price and having a web site on the internet does not guarantee the success unless they provide high-quality e-service, which in turn becomes the main challenge for many organizations. The study of the service quality of websites is new while the traditional service quality has been studied extensively over the past two decades. Whereas, the traditional service quality is defined as "overall evaluation or an attitude to superiority of the service". Zeithaml et al.(2002) defined the electronic service quality as "the extent to which a website facilitates efficient and effective shopping, purchasing and delivery of products and services". The distinction is vital as the interpersonal interaction in the traditional service quality is replaced with human-machine interaction. Therefore, applying the dimensions of service quality developed in traditional services area to e-services is inappropriate. Yoo and Donthu (2001) proposed five dimensions for electronic service quality: quality and quantity of information, ease of use, website design, reliability, security/privacy, interactivity and personality.

4.1 MEASURING SERVICE QUALITY

Parasuraman et al. (1985, 1988) offered the first model to measure the quality of service and they said the quality of service can be measured through functional quality dimensions which consist of five elements (tangibility, reliability, responsiveness, assurance, empathy). This model identified gaps in the quality of service provided in the organizations, which include five gaps starting from the expectations of service until it is delivered to the customer. The first gap is the service provider does not know the customer's expectations about service. The service provider did not realize the standard of service from the point of view of the customer is the second gap. Third gap relating to the service specifications and service delivery. Fourth gap is related to delivery of Service. Expected service by the customer and perceived service is the fifth gap. In addition a perceived service quality and satisfaction model was developed by Spreng and Mackoy (1996). This model is appropriate to find the concept of service quality and customer satisfaction. Also, this model is the reform of service quality and customer satisfaction which is measured through ten tips that will help in measuring the quality of service and customer satisfaction in organizations. Philip and Hazlett (1997) developed PCP attribute model. There are three important attribute of this model named (1) the service environment peripheral attribute (2) core attribute (3) crucial attribute. An important characteristics of this model is it's suitability to measure in any field of service. Another necessary characteristic of PCP attribute identifies the weak area of the service and where the service providers need to improve.

However, Sweeney et al. (1997) established retail service quality and perceived value model for measuring service quality and related factors in retail business. They proposed two models related with value perception of the customers. In model one functional service quality and technical service quality play a significance influence on value perception of the customers besides price and quality of the products. On the other hand model two reflects functional quality perception stimuli the technical quality perception and customer's interest to buy the products.

One important model developed by Oh (1999) is called customer value and customer satisfaction model. This model emphasizes the behavior of the consumers after taking any service. In this model it has shown that perceived service quality is influenced by perceived price and perceptions. On the other hand, perceived customers value and customer satisfaction are influenced by the perceived service quality. If the customers get better perceived value relatively cost/price and they are satisfied with the service then it effects on their repurchase intention.

5. CUSTOMER SATISFACTION:

There are many definitions of the term customer satisfaction in existing literature. According to Hansemark and Albisson (2004) satisfaction is the overall customer stance towards a service provider or emotional reaction to the difference between what the customer expects and what has been presented to him/her, regarding the fulfillment of need or desire. Oliver (1981) debates that satisfaction is a Summary psychological state in which the feeling surrounding disconfirmed-expectation is along with consumer's prior feelings about the consumption experience. In these days customer satisfaction has become more important than before due to its effect on customer retention.

Customer satisfaction is also defined as a customer's overall evaluation of the performance of an offering service (Johnson and Fornell 1991). In a service context, overall satisfaction is overall evaluations of service quality. Many researchers have paid much attention to the close relationship between the quality of service and customer satisfaction. Oliver (1993) view service quality as one of the antecedents of customer satisfaction and propose a link from service quality to customer satisfaction. The concept of customer satisfaction consists of

several elements from different sources (McColl & Schneider, 2006). Knowing the motivations, expectation and desires of the customer is essential in order to provide better service. The importance of identifying the key concepts and elements of satisfaction will provide a template by which information will be gathered about what is and what is not working. This includes both hard measures that are more tangible and can be observed (number of complaints, average wait time, etc) and the soft measures which are less tangible appearances (politeness, helpfulness, etc) (Hayes, 1998).

6. RELATIONSHIP BETWEEN SERVICES QUALITY AND CUSTOMER SATISFACTION:

The researchers studied the relationship between customer satisfaction and service quality. Some studies have shown that providing better quality service will lead to customer satisfaction. Parasuraman et al. (1988) specifically suggests that the quality of service provided is a forerunner for customer satisfaction. In contrast, there is a debate in the inevitability of that customer satisfaction forerunner for judging the quality of service. How exactly does a particular service quality dimension affect customer satisfaction? Johnston (1995) found that the causes of satisfaction and dissatisfaction are not necessarily the same. Some attributes of service quality are not critical for satisfaction but will lead to dissatisfaction if they are not performed in the required manner. Based on Herzberg et al. (1995) research on work motivation, Johnston classified the dimensions in three groups. (1) Satisfiers: factors which will lead to satisfaction if they are provided properly but it will not cause dissatisfaction if they are absent. (2) Dissatisfiers: are those factors in which failure to deliver will lead to customer dissatisfaction but will not necessarily result in satisfaction if they are delivered. (3) Dual factors which had an impact on both satisfaction and dissatisfaction. In the same context, Johnston (1995) argues that attentiveness, responsiveness, care, and friendliness are the main source of satisfaction, while reliability, responsiveness, availability, and functionality are the main source of dissatisfaction. Several studies concerning the quality of services in physical meetings concluded that some factors are responsible for customer perceptions of quality, which are likely to result in customer satisfaction and which, in turn, may lead to behavioral intentions to purchase. Some authors (Zhang & Prybutok, 2005) found in their studies that behavioral intentions can predict behavior, meaning that behavioral intention structures are relevant to customer service.

7. BEHAVIORAL INTENTION

The quality of web sites has become a key indicator of the good that a company can satisfy their customers. Another new challenge is the rapid increase in expectations and the level of sophistication of e-customers. Over the past years, research efforts focused on the understanding of how e-customers perceive the quality of electronic services and how these perceptions translates into customer satisfaction and behavioral intentions. Adding to the challenges of managing e-customers, it became important to understand how the differences of each client in terms of computer skills affect their online experience, behavior and attitudes (Udo, Bagchi, & Kirs, 2008). Since satisfied customers are more likely to stay with a company for a long time, the quality of service has an effect on customer satisfaction and profitability of the company (Anderson, Fornell, & Lehmann, 1994).

After a considerable period assumes that consumers make rational decisions largely in purchasing behavior, marketing specialists are increasingly consider the influence of emotions produced by marketing stimuli, (Laros & Steenkamp, 2004). Emotions are responses to specific causal stimuli that are usually more intense and long lasting, which are usually more intense and long-lasting, especially if emotional fingerprints are stored and recovered (Cohen & Areni, 1991). The distinction between the feelings and emotions is important, because

feelings are also answers to casual specific stimuli, although less intense and fleeting more if compared to the emotions (Agarwal & Malhotra, 2005).

8. E-SERVICE QUALITY

The first formal definition of the quality of the website's service was provided by Zeithaml, Parasuraman, and Malhotra (2001). Zeithaml et al.(2001) defined e-SQ as the degree in which a web site facilitates efficient and effective shopping, purchasing and delivery of products and services. Online shopping can satisfy the need of consumers of several more effective and more efficient in comparison with conventional shopping (Grewal, Lyer, and Levy, 2004; Monsuwe et al. 2004). Online customers therefore expect equal or greater levels of quality of service than traditional customers (Lee and Lin, 2005). Therefore, many academic researchers in online shopping recently placed emphasis on the quality of e-services to attract potential customers and retaining existing customers (June et al., 2004). Consequently, a fundamental understanding of the factors affecting the satisfaction of online customers is of great importance to electronic commerce (McKinney et al., 2002).
The term e-service quality refers to overall customer evaluations and verdicts about the quality of service delivery by a particular company in the virtual marketplace (Santos 2003). A sort of scales has been proposed specifically for e-services, but most of them have been designed based on the SERVQUAL model. SITEQUAL was developed by Yoo and Donthu (2001) to measure e-service quality which consists of: ease of use, aesthetic design, processing speed and security. Wolfinbarger and Gilly (2003) allocated five criteria to measure the e-service quality: (a) Website design, (b) Fulfillment, (c) reliability, (d) Security/Privacy, (e) Customer service. In this context, Santo (2003) debate e-service quality dimension as combination of, incubative dimensions which include: ease of use, linkage, structure and layout, web-appearance, and active dimensions which consist of: reliability, support, efficiency, communication, security, and incentive. Bressolles (2006) developed a measurement scale NETQUAL, which include seven dimensions: Information, Ease of use, Reliability/Fulfillment, Site design, Security/Privacy and Interactivity/ Personalization.

8.1 MEASURING E-SERVICE QUALITY:

Many researchers have their own methods. Parasuraman et al. (2005) believe that the quality of e-service, to a certain extent, refers to the effectiveness and efficiency of browsing online, purchase online, and the supply of goods and services. Yoo and Donthu (2001) SITEQUAL believes that electronic service quality includes four dimensions such as accessibility, speed memorizer, artistic design and interaction response rate. Loiacono et al. (2002) develop the WEBQUAL to scale the service quality. They point out that e-service quality includes 12 dimensions, the information adaptability, trust, design, visual requirement, flow, business process, interaction, response time, intuition, creativity, overall communication, and replaceability. Wolfinbarger and Gilly (2003) EtailQ categorizes the quality of e- service in four dimensions as site design, performance or reliability, privacy or security and customer service. Yaobin and Tao (2005) also offer goodwill besides serviceability, accessibility, and security, specifying that the goodwill is a very important factor in the online purchase.

8.1.1 INFORMATION

Poor quality of information can make disaster in the organizations leading to customer dissatisfaction, the increase in costs, reduced levels in the effectiveness of decision making, the ability to plan, implement and execute organizational policies (Redman, 1998). According to Redman (1998) the operational, tactical and strategic performance of organizations is directly related to the quality of their information. Poor quality of

information can lead to customers are charged for products or services that they have not purchased or products are shipped to the wrong address. The poor quality of information perhaps the greatest obstacle to the development of sound business strategies (Redman, 1998).

According to Fisher & Kingma (2001) the information dimension is considered to be a multidimensional concept .Wang and Strong (1996) offers four dimensions that are essential to customers when you are looking for information. They offered a framework that included the following: 1) the information must be reachable, 2) the information must be interpretable, 3) the information must be related, and 4) the information must be correct. These four dimensions were labeled as intrinsic information quality, contextual information quality, representational information quality, and accessibility information quality. Intrinsic information concerns the accuracy, credibility and reputation of the information provided. Contextual information quality "highlights the requirement that information quality must be considered within the context of the task at hand; that is, information (data) must be relevant, timely, complete, and appropriate in terms of amount so as to add value" (Wang & Strong, 1996). The representational information quality dimension consists of both the format of the information and the meaning of the data. The information quality attributes for this dimension, including intelligibility, ease of understanding, the consistency of representation, and short representation. The last dimension of the typology and quality of accessibility information is related to how accessible information is to find or discover on a Web site, given its security features. In addition, there is no sales staff to answer shopper's questions, and as a result is especially important for online retailers to have the necessary information in the web page (Kim & Stoel, 2004). Lynch and Ariely (2000) found that the ability to find the necessary information on web site specially on, price and quality, positively influenced satisfaction with the experience of shopping online, the product purchased, and the intention of sponsorship. Lee & Kozar (2006) proposed that the higher is the quality of the information, the most online customers who select this website for online shopping. The matter of whether the quality of information conveyed in the 55 web sites meets the needs and expectations of users is crucial. Based on information from past research, the quality can be measured with the relevant information, currency and understandability. Relevant information includes the depth and relevant scope, and the completeness of the information. Currency includes the updating of the information. Understandability includes ease of understanding and clarity of the information. The significant effects of the relevant information, the currency and understandability in increasing information quality have been exhibited in previous studies (McKinney, Yoon & Zahedi, 2002). Other common criteria for evaluating information content includes: accuracy, timeliness, concise and completeness (Madu & Madu, 2002).

While Francis and White (2002) found that adequate information or product description enhances a customer's intention, Novak et al (2000) argues that information quality contributes to delivering a compelling experience. The quality of information that is delivered is a key factor affecting a website's success; hence website information quality must be related, up-to-date and easy to understand to significantly influence online customers' attitude, satisfaction (Feindt, Jeffcoate & Chappell, 2002).

Schubert & Selz (1999) claimed that information is an important dimension of the quality of online service, and information on the shopping process was highlighted as another aspect critical to create an effective e-commerce Web site .This is especially true for online clothing retailers, because online shoppers can not try the garment to check the adjustment, texture or color so that they rely heavily on the information available to them on the site to help them in their decision to purchase. Therefore, unless the necessary information for an online purchase is available, online shoppers will leave the site and visit a competitor's Web site (Song & Zinkhan, 2003).

8.1.2 EASE OF USE

Ease of use is defined as the degree to which a person believes that the use of an information system would be free of effort (Al-Momani & Noor, 2009), as well as how it is easy for customers to make external research in cyberspace and internal navigation within the site. This dimension contains three aspects. Firstly, navigation deals with the way in which users can easily search for information in a Web site. It is considered to be the essence of the multidimensional construction of e-travel service quality (Kaynama & Black, 2000). Without interaction with the staff, online customers need to locate the information and products by themselves. If they repeatedly get lost or confused during the search process, they are expected to quit. It is suggested that navigation plays a principal role in delivering satisfactory services. The second aspect, access, refers to the user's ability to have access to resources; including information related to travel and the characteristics of the service, on airlines websites, and related to the ease of connection and the speed of downloads (Cox & Dale, 2001). It is likely that online users are going to leave and click on other sites, because it took too long for them to access a Web site or download information from the site. Therefore, access to the site is an important element related to the performance of the service. The third part of this dimension is the transactional functions, which allow customers to feel that the site is intuitive, simple and easy to use to perform a transaction (Kim & Lee, 2004). Several elements, including easy control, easy payment, and easy cancellations indicate the degree to which customers think that use of the site would involve little or no effort (Armstrong & Hagel, 1996). According to Desmet & Hekkert (2007) a web site must not only have a good and attractive design, but must also provide not only the beauty and attractiveness, but also high levels of usability, because it affects the emotional States of the user. Thus, a well-designed website should ensure a high level of usability (Cristobal, 2006). A nice-looking design can induce feelings of pleasure during the use of a website (Flavian & Gurrea, 2008). Therefore, an adequate degree of user-friendliness, linked to a comfortable atmosphere, could create a positive bias in the consumption. A good level of perceived usability could lead to higher levels of satisfaction, trust and loyalty toward a specific Web site (Chen, Wigand, & Nilan, 1999). Two central issues for usability are information organization and site navigation. Navigation describes a user's ability to find information efficiently with few barriers. If users are unable to quickly understand the nature or the structure of a site, they can become frustrated and leave. Users are likely to return to a site that they perceive to include a well-designed navigation system (Krug, 2000). Similarly, users must be able to quickly determine the nature of the information presented on a site, how the information is organized and how they can find the information they are looking for. Central to website navigation is the need to allow users to know where they are, where they can go, how they can get there, and where they have been (Nielsen, 2000). When t clickable images are instructive, they act as navigational cues that communicate all of these messages in usability.

According to Boonghee & Donthu (2002) how easy the site is to use is an indicator of a site's overall quality. Usability issues revolve around the ease of a system can be learned (Mills, et al., 1986). Usability is measured by the speed at which a user can complete the specific task on a site, the number of errors to a user makes when browsing to a site, and overall satisfaction to the user expresses with the site.

8.1.3 DESIGN

Website design is very important for online stores (Than & Grandon, 2002). The influence of the Web design on the e-service performance has been widely studied. Design refers to the presentation of content and information, such as the layout simple, clear and consistent, the proper use of the framework, the provision of a site map of Web sites that allows users to skip sections that are of no interest, listed menu Claire's and the logo of the company presented on each page (which is said to also enhance branding), proper use of color, graphics,

images and animations, together with the appropriate size of the web page. The design or the appearance of a site is usually the first determinant observed by the user. Creation of the website must ensure a high level of usability, which is a high degree of ease of use of the different elements. In addition to text, the information is also provided by the proper use of graphics. According to Wolfinbarger & Gilly (2001) users do not want to see graphic that they did not need, but they appreciate the ability to download larger images and different angles of photos they would like to see.

In the context of a wear retail website, Eroglu, Machleit and Davis (2003) found that aspects of the graphical style affected satisfaction with site and they came to the conclusion that an aesthetically pleasing web design can attract customers if it generates pleasant feelings that are associated with the online experience. Previous research has found that poor graphic design elements and presentation styles can confuse and negatively affect consumers' willingness to browse or buy through an online channel (Nielsen, 1999). Navigation design refers to the navigational scheme used to help or delay users as they access different sections of a website (Garrett, 2003). Navigation tools, such as: menus, directories, frames, buttons, site maps, subject trees, a search engine, image maps and colors (Clyde, 2000) should help users to maintain a mental map of where they are, and how the various sections / pages are related to each other. It is useful to have a sitemap that Web site users can use to see the layout on a particular site and maneuver around it (Hudson et al., 2000) . Clyde (2000) proposed one way to mitigate this problem through including a search engine on the site.

Montoya-Weiss, Voss & Grewall (2003) found that graphic styles of sites influence the use of online channels and overall satisfaction by reducing the perception of security risks. In a similar manner, Ko and Rhee (1994) proposed that displaying products can attract consumers into making impulse purchases.

8.1.4 RELIABILITY

Reliability refers to the ability to provide the promised service accurately and consistently, including: the frequency of update of the site, quick answers to the demands of the customers and the accuracy of online purchase and invoicing, fast deliveries and conservation of personal information secure (Janda, Trocchia & Gwinner, 2002; Lee & Lin, 2005). This element was observed by Yang (2001) as a determining factor of reliability for online service quality. The importance of reliability has been emphasized by the information technology-based service. Moreover, Zhu, Wymer and Chen (2002) argued that reliability dimension has a direct positive effect on the perceived service quality and client satisfaction. Online stores must provide error free and secure transactions online so that customers feel comfortable with online shopping (Lee & Lin, 2005).

Availability dimension refers to the extent to which online information resources are equipped to provide customers with the products / services that are easy to locate wanted. These services also have the difficulty of linking web pages, and facilitate purchase decisions (Madu & Madu, 2002). However, technical software problems are problems related to purchasing on the Internet (Fram and Grady (1995). When consumers use a website for browsing or buying, functional problems such as missing links and buttons that don't work leads to frustration and out of the site (Fram & Grady, 1995), and as a result the online retailer loses a valuable opportunity to build customer loyalty (Wachter, 2002). According to Santos (2003), prevention and removing broken links and links to sites that no longer exist or are under construction are related to the quality of e-service total.

Having products in stock, delivering the products within the time frame promised, and the accuracy of service promises are incorporated into this dimension and are of importance (Zeithaml, et al. 2002a). According to Kim and Lennon (2004) when customers are notified about stock that has sold out after selecting an item to purchase, they show stronger negative emotions and lower purchase intent than when notified before the selection. Yang and Fang (2004) indicated that the execution of the specific commands and promises of maintaining service are

primary service quality elements that lead to customer satisfaction and dissatisfaction. Reliability has a direct positive effect on perceived service quality and customers' satisfaction Lee & Lin (2005).

8.1.5 SECURITY/PRIVACY

The dimension of privacy is defined as the degree to which the site is safe and protects customer information (Parasuraman, et al., 2005). The issue of privacy is a critical issue in online retailing and consumers are very weary in this regard due to the dangers and risks of disclosing personal information to unknown sources (Sharma & Sheth, 2004). Due to the abuse of the risks associated with personal information, many people are still reluctant to buy products on the Internet and because of these concerns with privacy, online retailers are now more aware of the importance of providing consumer privacy policy (Ranganathana & Ganapathy, 2002). The security/privacy dimension has been rated most critical when influencing non-purchasers' perceptions of service quality and has also been shown to have a strong impact on a customer's intention to purchase (Van Riel, et al., 2003), satisfaction (Szymanski & Hise, 2000), and over all site quality (Yoo & Donthu, 2001). While security deals with the technical specifications of a website security and payment methods, this dimension also includes reputation for the company, trust and the general confidentiality between consumers and those who operate from within the company, participation in the communication process (Van Riel, et al., 2003).
Even though privacy and security have been found by some to not influence perceptions of website quality significantly (Wolfinbarger & Gilly, 2003) or satisfaction with a website (Kim & Stoel, 2004) there has been much research that supports the importance of the security / privacy in online retailing (Santos, 2003). Security is perceived as a critical dimension in terms of quality and service satisfaction, and is unique in the Internet environment (Szymanski & Hise, 2000). A lack of assurance of security has been regarded as the main barrier preventing customers from shopping online as was also found by Ranganathan and Ganapathy (2002), where privacy and security have been found to have a significant impact on the intent to purchase. Moreover it has been proven that trust in the company and the e-service quality environment positively influences both the quality of the service as a whole and the satisfaction of the client (Lee & Lin, 2005). Security also refers to the attributes of privacy which are essential for making transactions online (Zeithaml, et al., 2002b). Customers may weary that their transactions and personal data can access or use via the Internet by third parties and which has been shown as the main concerns of consumers in previous studies (Hoffman, Novak, & Peralta, 1999). Privacy is a theme that was echoed by a variety of authors such as Zeithaml, et al. (2002b) and they describe privacy as one of the key dimensions that consumers use to evaluate the quality of a web site (or quality of e-service). In a similar manner, Stewart and Pavlou (2002) recognized concerns about privacy/security as being crucial for thinking about the effectiveness of interactive media (Parasuraman & Zinkhan, 2008).

8.1.6 INREACTIVITY/PERSONALIZATION

Interactivity refers to how the web site responds to its customers in an online environment (Zeithaml, et al., 2002a). How can the needs and complaints of customers be answered via email in a manner polite? Responsiveness can be defined as "effective handling of problems and returns through the site (Parasuraman, et al., 2005), as well as the willingness to help online customers". It can be measure by the time needed before responding to a client's question (Watson, et al,, 1998). Responsiveness measures online retailer's ability to provide appropriate problem solving information to customers, having mechanisms for handling returns and providing online guarantees. The issue of responsiveness can be seen in two ways: load time and search time Wan (2000) .While search time is mainly based on the size of a database, loading time can be a problem, and most of the designers take this into account in the design of web pages. Responsive web site proves to be highly

important for end users and consumers expect online stores to respond to their inquiries promptly. (Robbins & Stylianou, 2003). Responsiveness describes how often an online shop voluntarily provides services that are important for its customers (Kim & Lee, 2002).

Customization or personalization results in the media which is best created a virtual experience and stronger attitude; additionally, interactivity and richness are strong predictors of telepresence, an antecedent of flow, productivity and satisfaction (Mathwick & Rigdon, 2004). Examples of personalization could involve sending post purchase e-mails and creating a personalized interactive environment online for each individual customer. Other characteristics of personalization include means of customer interaction such as message boards and customer hotlines (Lee & Lin, 2005).

Another phase of the importance of the customer information is in the interactivity of some e-commerce sites. For example, to make plane reservations, online shoppers feel that they can investigate further options of what they can offline. Also, information can be printed and saved, something that cannot be done on the basis of a telephone conversation with a travel agent (Wolfinbarger & Gilly, 2001). Personalization implies individual attention; personal thank you notes online shops, and the availability of a message for questions or comments from the customer zone (Yang, 2001). The lack of interaction in real time tends to prevent that potential customers through the purchase of online shopping (Yang & Jun, 2002). Previous studies have examined the influence of the customer service provided by Internet retailers in the perception of the customers on the quality and service satisfaction (Wolfinbarger & Gilly, 2003), it was found that personalization in an online environment does not increase significantly the quality of electronic services in general or of the satisfaction of the customer that has been linked to the fact that people are wary of providing personal information online for fears of being used elsewhere. This has severely reduced the possibilities of customization that rising levels of customization will be seen without high levels of confidence (Lee & Lin, 2005).

9. CONCLUSION AND RECOMMENDATIONS

The main objective of this study was to identify and explore the dimensions of service quality in an online context and discover how these dimensions helped the customer satisfaction.

9.1 RESEARCH FINDINGS

The findings emphasize that the quality of electronic service, in fact influence satisfaction. As service quality is a determinant factor of an organization website success, the analysis of literature in e-service quality showed that there is a positive relationship between e-service quality and customer satisfaction. However, the result expressed that organization customers are satisfied in three dimensions of e-service quality which are: information, ease of use and security/privacy while the overall impact of the other three (design, interactivity /personalization and reliability) are important.

9.2 RESEARCH RECOMMENDATIONS

- Firms should give more attention to its e-service quality especially in the three dimensions which could meet its customer's expectation which are: interactivity/personalization, design and reliability.
- However, as the users become more mature, they know exactly what they expect to be e-service quality factors. Therefore, it will be valuable to find out the solutions to investigate failures in firm electronic service quality and fill the gap between what is perceived by the customers view through in depth qualitative inquiry. The solution will include the integration of internal functional departments and

external integrations of channel. Nowadays, called customer relationship management (CRM) and supply chain management have become the main factors.

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A Pedagogical Approach to Teaching a First Course in Engineering Electromagnetics

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Abstract

This paper presents a pedagogical approach to the development and teaching of a course in engineering electromagnetics to undergraduate students in electrical and computer engineering at Saint Louis University. It also discusses myriad problems and challenges in offering this course to accommodate the changing discipline boundaries. Engineering electromagnetics, by nature, is not a very popular course to many students because they incorrectly think it is full of complicated mathematics with little or no applications in the real world posing an intellectual and educational challenge to them. It makes this course appear insurmountable, abstract and abstruse. With the evolution of state-of-the-art technologies in electrical and computer engineering, the understanding the fundamental concepts in electromagnetics has become increasingly important. This approach provides tools of accurate analysis through computer methods, in addition to closed-form methods used for design analysis and synthesis. Difficult three-dimensional vector differential and integral concepts are discussed when they are encountered with emphasis being on physical insight. The course is modernized by briefly introducing the finite-difference method, and thereafter, integrating some prewritten computer programs to demonstrate graphical representation of some problems of practical interests. As a result, the students really begin to find a measure of joy in this course and emerge as engineers equipped with the best of the closed-form and computer worlds.

1. Introduction

Saint Louis University, a private university under Catholic and Jesuit auspices, traces its history to the foundation of Saint Louis Academy in 1818, and was renamed Saint Louis University in 1832, becoming the first university established west of the Mississippi River. The University settled at its present site on Grand Boulevard in 1888. Saint Louis University is classified as Research Level II institution by the Carnegie Foundation. The University enrolls more than 13,000 students. Parks College of Engineering, Aviation and Technology, one of the twelve colleges or schools of Saint Louis University, prepares students for careers in engineering, aviation, computer engineering and related fields. The Department of Electrical and Computer Engineering was established in 1987, and is committed to excellence in undergraduate teaching and research. The Electrical Engineering Program, which offers B.S. in electrical and in computer engineering, is accredited by the Accreditation Board for Engineering and Technology (ABET). Currently, the Department offers this three-credit hour course in engineering electromagnetics as a required course to electrical engineering majors at the junior level and as an elective to computer engineering majors.

Engineering electromagnetics is a mature basic science, and is essential in the explanation of action at a distance. It is of fundamental importance to physicists, and to electrical and computer engineers, and appears indispensable in explaining electromagnetic phenomena and in understanding the principle of operation and the characteristics of electric, magnetic and electromagnetic engineering devices. The student is assumed to have completed typical lower-division courses in physics and mathematics as well as a first course in electrical engineering circuits. Understanding electromagnetics and appreciating its applications require a generally higher level of abstraction than most other topics encountered by electrical and computer engineering students. This warrants a systematic and novel approach to organizing topics in engineering electromagnetics in terms of range and depth of coverage. Many challenges and opportunities that are encountered in delivering this course are summarized by Whinnery [1] and Sadiku [2]. Challenges include the need to (1) maintain the student interests in spite of deceasing popularity of the subject of engineering electromagnetics and its reputation as a difficult and abstract subject, (2) cover most of the topics, in one-semester, that are fundamental and of essence to the practicing engineers based upon dynamic fields and their engineering applications, and (3) introduce the process of mastering the electromagnetic model [3] and associated rules of operation.

A solid and firm grasp of the basic principles is now more essential than ever before. An attempt is focused on maintaining a constant link with established as well as new emerging applications, while at the same time emphasizing fundamental physical insight and solid understanding of basic principles. Topics and extents of teaching engineering electromagnetics are chosen such that topics on the underlying principles—essential to practicing engineers and to students pursuing further study in this field—are covered in one-semester. The recommended course contents for a regular three-credit one semester course typically include static electric fields, steady electric currents, static magnetic fields, time-varying fields and Maxwell's equations. In so doing, topics on vector analysis, a language of engineering electromagnetics, are not formally covered in details. One important feature of this approach is to treat bulk of the topics through the use of the Cartesian coordinate system to keep the geometry simple and yet sufficient enough to learn the physical concepts and mathematical tools. It is attempted to maintain a good balance of mathematical rigor that will convince students without causing them to lose interest. The proposed course in engineering electromagnetics aims at the development and understanding of Maxwell's equations [3-8], requiring the extensive use of vector fields. It is this very step that makes the subject of engineering electromagnetics appear insurmountable to many students and turns off their interest. To overcome this difficulty, the topics of vector analysis are presented when it is necessary, and the importance of acquiring these mathematical tools in the study of engineering electromagnetics cannot be overemphasized.

This approach provides tools of accurate analysis through computer methods, in addition to closed-form methods used for design analysis and synthesis. The course is modernized by briefly introducing the finite-difference method, and thereafter, integrating some prewritten computer programs. As a result, the students really begin to find a measure of joy in this course and emerge as engineers equipped with the best of the closed-form and computer worlds. Some examples are included to demonstrate graphical representation of some problems of practical interests.

2. Recommended Course Contents

This course is specifically designed for a one-semester first course in engineering electromagnetics, nowadays typically the only required electromagnetic fields and waves course in electrical and computer engineering

curricula. The recommended course content of ECE-340 for spring of 2013 at Saint Louis University is provided in Table 1.

Week #	Week	Activity
1	Jan 14 – Jan 18	Introduction, Coulomb's Law, Vector Analysis
2	Jan 21 – Jan 25	Martin Luther King Holiday: Jan 21 Electric Fields
3	Jan 28 – Feb 01	Electric Potential
4	Feb 04 – Feb 08	Gauss's Law and Applications
5	Feb 11 – Feb 15	Metallic Conductors
6	Feb 18 – Feb 22	Poisson's and Laplace's Equations Test I: Friday, Feb 22
7	Feb 25 – Mar 01	Capacitance: Dielectric Materials
8	Mar 04 – Mar 08	Boundary Conditions; Electrostatic Forces and Energy
9	Mar 11 – Mar 15	Spring Break: Mar 11 - 15
10	Mar 18 – Mar 22	Steady Electric Currents
11	Mar 24 – Mar 29	Biot-Savart Law and Applications Easter Break: march 28 – 29
12	Apr 01 – Apr 05	Easter Break Contd.: April 01 Ampere's Circuital law Test II: Friday, April 05
13	Apr 08 – Apr 12	Vector Magnetic Potential: Magnetization
14	Apr 15 – Apr 19	Inductors; Faraday's law; Magnetic Forces
15	Apr 22 – Apr 26	Maxwell's Equation; Displacement Currents
16-17	Apr 29 – May 10	Time-Varying Fields and Waves Final : Friday, May 10 at 12:00 – 01:00

Table 1. Recommended Course Contents

3. Vector Analysis

The fundamental laws of electromagnetics, expressed in compact form by the application of vector analysis, involve spatial relationships. Vector analysis deals with the formulation of fundamental laws involving two or more spatial dimensions. Many of the quantities encountered in the mathematical description of electromagnetic phenomena are vector, and can best be handled using vector analysis. Vector calculus treats those vector fields which change with respect to space and time.

In order to cater to new trends—teaching topics of engineering electromagnetics that are of essence to practicing engineers—the important topics of vector analysis and calculus are assigned as reading material at the beginning of the course. Students have usually been taught this material in mathematics courses, and are assumed to have background material that is required for a traditional course in engineering electromagnetics. As a result, the material does not have to be covered in lectures and thereby allows time to introduce the computer-based numerical methods of electromagnetic field analysis.

4. Computer-based Numerical Methods

The most recent trend in engineering electromagnetics is the introduction of computer-based numerical methods of electromagnetic field analysis. Solving electromagnetic field problems using compute methods have been very useful and efficient in recent days. In most of the universities, a first-year course in programming is a requirement for graduation. With this tool, students should be able to integrate their training and experience to gain more insights of electromagnetics by presenting graphic-based images of fields.

To emphasize the application of computer to visualize fields, the course briefly introduces the finite element method, the most important of all numerical methods for the solution of field problems. Students are exposed to prewritten computer programs that would require them only data preparation to explore the results of analysis. On example of the prewritten programs is the interactive *QuickField* finite element analysis system which is repeatedly used to illustrate various electromagnetic problems of practical interest. *QuickField* is easy to use and does not require a long training. Moreover, most of *QuickField* procedures are so intuitive and straightforward, that it is usually enough to see them once and avoid reading any written instructions. Therefore, one could find that it is most effective to learn *QuickField* basics by simply playing with examples provided.

Two examples are provided to demonstrate the scope of observing potential distributions and field gradients pertaining to (i) four infinitely long conducting strips of equal width, situated such that the cross-section of the arrangement is a square as shown in Figures 1 and 2, and held at zero potentials except for the top one held at 100 volts, and (ii) a geometry bounded by six infinitely long conducting strips of uniform width, situated such that the cross-section of the arrangement is represented as shown in Figures 3 and 4, and held at zero potentials except for the top three strips at 100 volts. Students completing these projects had very clear pictures of the potential distributions and field gradients for the prescribed geometries with the variation with two dimensions. As noted, the exact solutions of Laplace's equations with such boundary conditions are complex in nature.

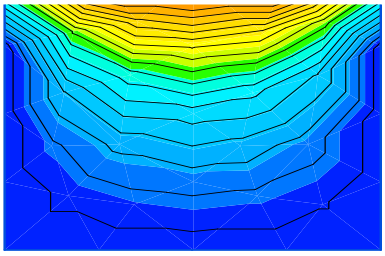

Figure 1. Potential distribution

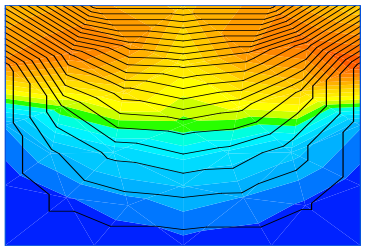

Figure 2. Field gradient

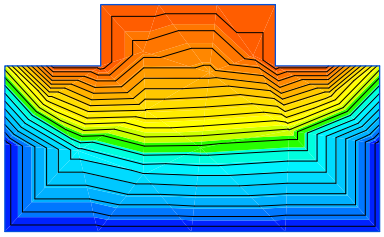

Figure 3. Potential distribution

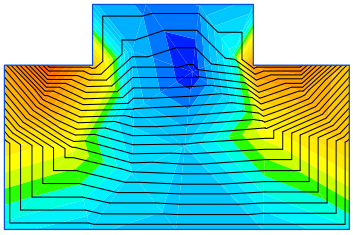

Figure 2. Field gradient

4. Conclusions

This paper addresses the challenges in teaching engineering electromagnetics in the undergraduate electrical and computer engineering curricula. It also outlines the pedagogical approach to face and overcome these challenges in order to deliver the course in one semester and cover those topics of elctromagnetics that are fundamental and of essence to the practicing engineers based upon dynamic fields and their engineering applications. The course concentrates on the underlying basic principles so that engineers, in their professional life, are prepared to handle new material with keen perception and proper understanding. In order to accommodate the desired topics, the essential topics on vector analysis—the language of engineering electromagnetics—are assigned as reading material at the beginning of the course thus freeing times for new computer methods. Students have usually been taught this material in mathematics courses, and are assumed to have background material that is required for a traditional course in engineering electromagnetics. As a result, the material does not have to be covered in lectures. Furthermore, the additional concepts on vector analysis are introduced using just-in-time approach. This novel approach of teaching electromagnetics treats bulk of the topics through the use of the Cartesian coordinate system to keep the geometry simple and yet sufficient enough to learn the physical concepts and mathematical tools. It is attempted to maintain a good balance of mathematical rigor that will convince students without causing them to lose interest. Solving many problems of practical interest by computer methods is addressed by briefly introducing the finite element method and, thereafter, using prewritten programs, such as, interactive *QuickField* finite element analysis system, which is repeatedly used to illustrate various electromagnetic problems particularly by presenting graphic-based images of fields. *QuickField* was liked by students as an extremely friendly tool, applicable for a variety of field problems, and for providing fast and accurate results. Students were required to write their own programs using any scientific languages to verify the results obtained by *Quickfield*. And, as a result, the students really begin to find a measure of joy in this course.

This novel approach of teaching was applied for the first time in the spring semester of 2013 in a clearer and more interesting manner than ever before. No formal assessment of the course was carried out; however, student evaluations at the conclusion of the semester provide enough positive comments and directions. It is our conviction that a new breed of engineers, in the field of engineering electronagnetics, will emerge through this training and experience exploiting the best of the traditional engineering electromagnetics and modernized computer applications.

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Educational Gaming and Use for Explaining Alternative Energy Technologies

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Abstract

Raising awareness of energy issues to high school students using traditional teaching methods can be tedious and unproductive. However, letting a high school student engage in an interactive 3D game can not only stimulate general interest but can also captivate and educate. During 2013, several demonstrations were given in a virtual reality lab at the University of Louisiana that explained solar thermal power concepts and other alternative energy technologies. These were given on three 150 inch screens in a concave design, immersing the user in a 3D educational experience. Several software technologies were used in the creation of the game, the main ones being Solidworks, 3ds Max Design, and Unity 3D. The scene of the game was constructed using a scale model of the Cleco Alternative Energy Center in Crowley, Louisiana. This paper gives a literary review of educational games and explains the design process of the interactive 3D game and the educational experience from demonstrations during 2013.

Introduction

Finding new innovative ways to capture students' attention and make learning a more natural and fun experience rather than the less attractive traditional one can be challenging. The new generation of learners, termed Net Generation, are more comfortable with image-rich rather that a text-only environment [1]. Even with the aid of Power Points, the visually literate Net Generation of students have trouble keeping alert and captivated so that they can focus on and absorb the information. To tap into the multiple intelligences and learning styles of the Net Generation the audio and visual components of a video potentially provide a best fit [2]. How can current educators reach the Net Generation of children who are more visually literate than earlier generations?

A 3D game was created using a scale model of an existing Alternative Energy Center. This serves to not only inform students of the Center but also to educate them on various alternative energy technologies. Using visual aids is beneficial in explaining and a walkthrough game seems to increase focus and make learning fun. It also gives students a near hands-on feel. The focus of the game explained how a solar thermal power plant captured energy and converted it into electricity. This was animated in various ways such as the solar troughs tracking the sun throughout the day. The game allowed the user to walk through the model where informational popups explain the various alternative energy technologies.

The 3D game was created with the intention of explaining the various technologies of an alternative energy center. This power facility was first modeled using Solidworks 3D CAD software. This model was then brought into 3ds Max Design where textures were added and animations rendered of the concentrating solar power collectors collecting solar energy and converting it into electricity. Then to add to the educational experience, the 3ds Max Design model was brought into the Unity 3D game engine where a walk-through game was created. This allowed the user to walk through the solar field using a PlayStation remote to see the various alternative energy technologies. Next, the game was animated in various ways such as the solar troughs tracking the sun throughout the day. To further the user experience, interactive capabilities were added giving the user control of the solar tracking system and real time visual power generation.

This paper looks into the importance of introducing educational games for learning engineering concepts. The potential for significant educational benefits of video games are explored through a presented a literary review of educational games. The game created helps explain various alternative energy technologies. These technologies are presented briefly as they are the content presented in the game. This paper also explains the design process of the interactive 3D game and the educational experience from demonstrations during 2013.

Educational Gaming

There is deep concern about the United States' ability to sustain its scientific and technological superiority through this decade and beyond according to a report by the Business Roundtable [3]. As the world continues to change, continuing to provide the same types of education to students will not serve them well [4]. High-tech industries require proficiency in math, science, computer literacy and engineering. To teach difficult scientific concepts traditional lectures and laboratory sessions are not adequate [5]. Many students leave high school and college physics courses with faulty mental models and this cumulative effect of large numbers of misconceptions may undermine students' comprehension [5]. Many students label traditional schooling as boring and are not motivated or inspired to work. Nearly half of the high school dropouts said that classes could not keep their interest [4]. The educational system needs to reform to prepare students for a much more technology driven, interconnected and competitive world[4]. The ability of our children to compete and prosper is highly dependent on innovative new methods to accelerate education, increase proficiency and reduce training costs [3].

With the current video game industry approaching revenues of $15 billion and with approximately 3.38 billion hours of game play it is of no doubt that games are effective in enhancing motivation and increasing student interest in the subject matter [6]. Due to videogames being fun, it is easier to achieve and maintain a person's undivided attention for long periods of time. This fun and excitement provide an innovative way of learning where participants experience novelty, curiosity and challenge [7].

An evolution of learning is represented by the convergence of education and gaming technologies. Games are not just looked upon as potential teaching tools but as the future of education [8]. To strengthen our system of education and prepare workers for 21st century jobs, educational gaming can be used to acquire the complex skills and knowledge needed [9]. Games intrinsically stimulate curiosity with the presence of challenges and influence learning through visualization, experimentation, and creativity [10]. In addition to their entertainment value, videogames have been successful in teaching a certain skill or addressing a certain problem [7].

Players engage in action at a distance like remotely manipulating a robot when involved in computer and video games. This action at a distance causes them to feel as if their bodies and minds have stretched into a new space, a highly motivating state which books and movies cannot do [11].

With this approach to education situated learning environments can be created. While learners play the computer games they acquire abilities and knowledge which can be applied to real world scenarios. Using these learning environments in educational computer games, students' learning interest and motivation for learning can be increased when compared to traditional teaching [12]. To apply skills learned in the games to other contexts it is critical to have a debriefing session post game [4]. Therefore, games will not replace teachers and classrooms, but only some textbooks and laboratories.

Game types

Games which follow a skill and drill format where players practice repetitive skills or rehearse memorized facts are known as Edutainment games. These games call again and again the same action patterns often failing in

transmitting non trivial knowledge. However educational video games can require higher-order thinking skills such as: strategizing, hypothesis testing, or problem-solving. These games are characterized by a system of rewards and goals which motivate players. To establish rules of engagement and situate activity a narrative context is inserted with learning content that is directly relevant to the narrative plot. Furthermore feedback is given with interactive cues that prompt learning [13].

Computer game technology used for training and education purposes, coined "serious games" teach by stimulating the imagination, sparking curiosity, and encouraging a spirit of competitive exploration. These games commonly require the use of logic, memory, problem-solving, critical thinking skills, visualization, and discovery [3]. For teaching complex procedures modern educational computer games can be effective tools because they: (1) use action instead of explanation, (2) create personal motivation and satisfaction, (3) accommodate multiple learning styles and skills, (4) reinforce mastery skills and (5) provide interactive and decision-making contexts [9].

The most stimulating and highest rated games were found to be adventure and strategy games. To maintain motivation in playing games, the game must require higher-order thinking skills with objectives and visualization strategies that influence creative problem solving and decision-making [13].

Intelligent tutoring systems can be used to identify when learners achieve learning goals and to provide suitable feedback. Offering immediate feedback can engage the learner's attention and teach through experience. The intelligent game-based learning environments are straightforward tools that can result in an emotional link between the learner and the game [14].

A constructionist approach to learning games involves designing and developing the video games rather than playing them. This involves two activities: experience-based knowledge construction and relevant product creation. The design and implementation of products are meaningful to those creating them and the learning becomes self-directed and active through this construction [13]. The learner begins to develop technological fluency by being involved in all the design decisions. This technological fluency involves using new technological tools, making significant things with those tools and developing new ways of thinking based on use of those tools [15].

Game Content

Educational game designers need to focus on combining the fun elements of games with the instructional and educational system design that includes motivational, learning, and interactive components [10]. To master complex scientific concepts students must focus or be engaged in the experience and there must be multiple instances of meaningful representations of the information. Through experience in learning-by-doing, students can extend and modify their mental models based on the differences between expected and actual behaviors of phenomena. Pedagogical tools and strategies should provide learners with experiential metaphors and analogies to aid in understanding abstractions remote or contradictory to their everyday experience. This can induce learning through experience in order for students to master complex scientific concepts [5].

Learning systems can be of greater benefit to students by taking learning styles into account. Personalizing the learning content presentations to correlate the information perceiving and processing styles of individuals can promote learning motivation and improve the learning achievements of the students [12]. There should be a meaningful and beneficial task that is sought after by the learner. Beneficial learning tasks must be made with sufficient content for learning or to aid in the learning process. For a task to be meaningful to the learner there must be motivation to perform the task [13].

Goals of different levels are found to help motivate learners to continue playing. To draw players into the storyline of the game, game designers often seek three levels of goals: short-term (collect the key), medium-

term (open the safe) and long-term (save the world) [13]. In addition to goals, the narrative may play an important role in the learning process. It also can be used for problem context as a tool to facilitate reflection and as a resource to provide the necessary advice and feedback [16]. However, the learning content must align with the narrative plot-line in order for an educational game to be effective [13].

Alternative Energy Center

The Cleco Alternative Energy Center is located in a rural area of approximately one acre in Crowley, Louisiana, and is home to several alternative energy technologies. The research building is approximately 6,000 square feet and consists of several offices, a lab, a conference room, and houses a gasifier and a torrefaction unit. Right outside the research building sits a concentrating solar power field consisting of parabolic troughs with over 1000 square meters of collection area. The following is a brief description of the alternative energy technologies being researched along with actual pictures coupled with rendered pictures from the models used in the educational game.

Torrefaction

A pilot scale torrefaction unit at the Alternative Energy Center is being tested for process optimization as torrefaction technology is still being researched. Commercial scale torrefaction units can be developed using the information gained from this research. Torrefaction is the thermochemical treatment process similar to roasting or mild pyrolysis. It improves the properties of biomass as a fuel and allows superior grindability. This dried product is termed torrefied biomass or torrefied wood and has no biological activity such as rotting. Typically 70% of the mass is retained as a solid product with around 90% of the initial energy content. This energy densification is achieved at a temperature of 200 to 320^{o} C, near atmospheric pressure and with the absence of oxygen/air.

Torrefaction is beneficial by improving the physical characteristics of biomass, and thus the overall economics of the biomass utilization process for energy production. The end product can be stored and used for several purposes including gasifier fuel [17].

Figure 1 shows the torrefaction unit that is currently being used for research at the Alternative Energy Center and the modeled version used in the game. In the game, as the viewport gets near the torrefaction unit, an informational popup arises with an actual picture and a brief explanation of the technology.

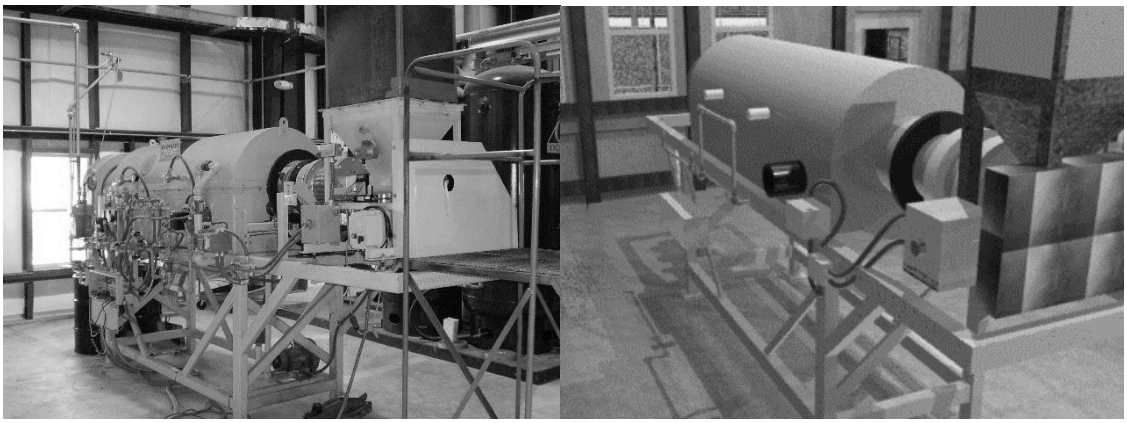

Figure 1: Torrfraction unit and 3ds Max Design rendered model of the unit.

Gasifier

A large portion of the research building houses a working gasifier. Gasification takes a waste product and turns it into an energy source which can help reduce our dependence on foreign oil and natural gas and provide a clean alternative source for electricity, fuels, and chemicals. Trash can be turned into energy through gasification making a clean fuel from biomass materials, like lumbering and timbering wastes, corn husks, wood pellets, and other municipal solid wastes. The biomass goes through a thermochemical process that converts that material to a synthetic gas. The syngas can be burned to produce electricity or further processed to manufacture a wide range of products such as ethanol, methanol, and fuels.

Several components of the gasifier at the Alternative Energy Center are shown in *Figures 2-4*. The corresponding modeled version used in the educational game is shown at right.

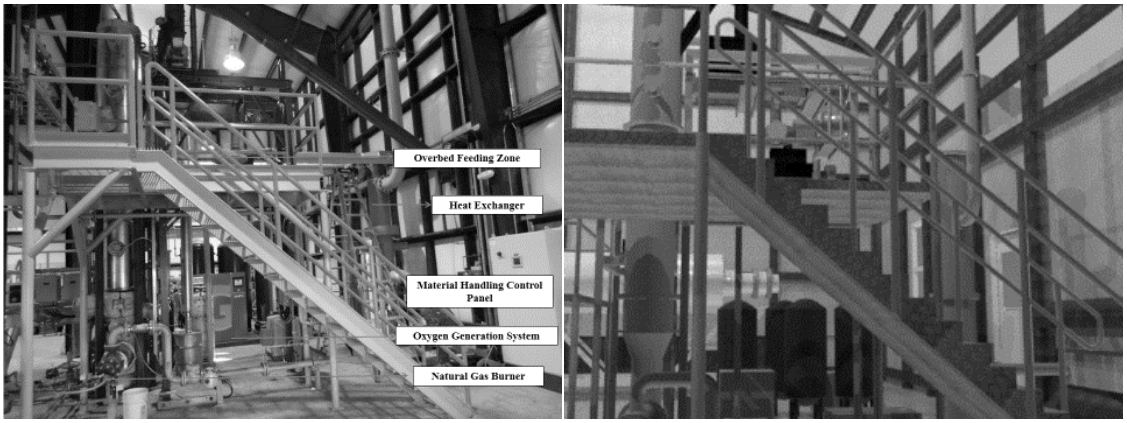

Figure 2: Front view of gasifier and 3ds Max Design rendered model of the unit.

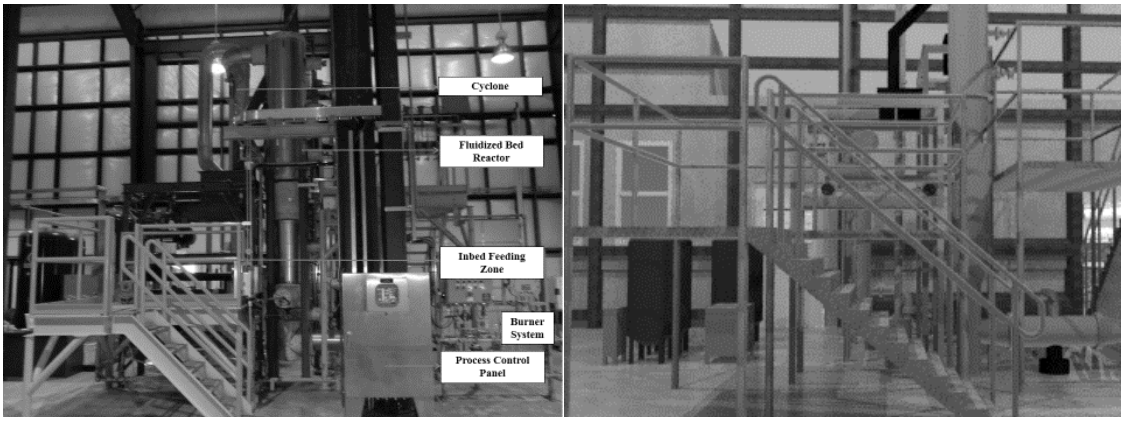

Figure 3: Side view of gasifier and 3ds Max Design rendered model of the unit.

Figure 4: West side of project building and 3ds Max Design rendered model.

As the user walks through the model, informational popups with actual pictures are triggered, explaining the various components and gasification technology.

Solar Thermal Field

In late 2012, University of Louisiana at Lafayette, in conjunction with Cleco Power, LLC, constructed and commissioned a pilot scale concentrating solar power (CSP) plant. This solar thermal power plant collected solar energy by using two arrays of solar troughs tracking the sun from east to west. CSP technologies use mirrors to concentrate or focus the energy from the sun and convert it into heat to create a vapor to drive a turbine that generates electrical power. There are several different types of CSP technologies but all have similar underlining concepts.

There are basically two parts to the CSP system; the collectors that convert the solar energy to heat and the power block that converts the heat energy into electricity. At the Alternative Energy Center there are large aperture parabolic solar collectors using linear focus to collect heat from the sun and transfer it to the working fluid. When heated, this working fluid travels to a heat exchanger to exchange heat with a refrigerant. This refrigerant vaporizes and the vapor generated creates pressure that expands into the twin screw expander. This expander drives an electric generator to produce electrical energy and send it to the grid. *Figure 5* shows a photograph of the solar field and a corresponding rendered image of the model in the game.

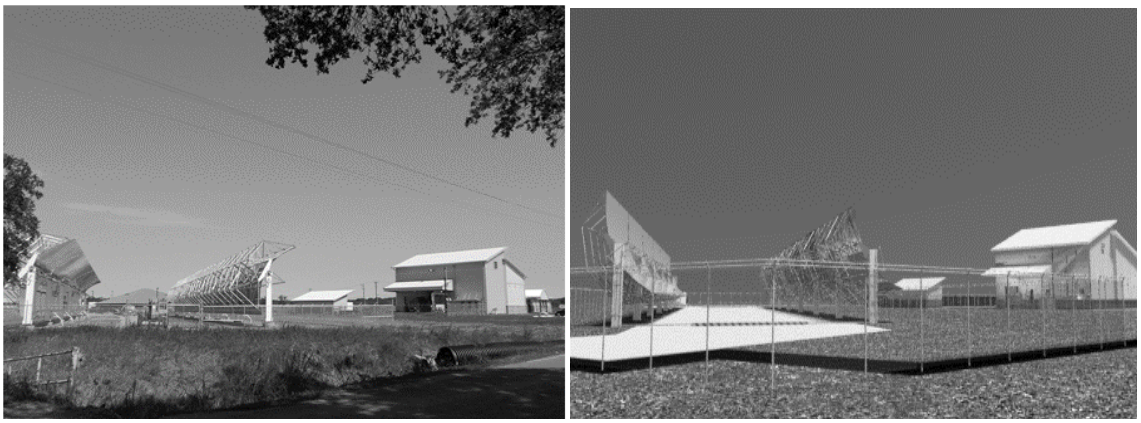

Figure 5: North view of solar field and project building and 3ds Max Design rendered model.

Several engineering concepts are used in the energy collection and power generation of the solar thermal field. To help explain these concepts the current educational game has model replications of the torrefaction, gasifier, and solar field with popups consisting of actual photographs and short explanations of the technology.

Modeling in Solidworks

The Alternative Energy Center was originally modeled in Solidworks to determine the shading effects from the building on various solar collector locations. Once the optimal field location was found the model was then used to create an animation to help explain the solar thermal power technology. The rendered Solidworks animation shows a walkthrough of the research building and an aerial view of the solar field with the troughs tracking the sun from east to west as they would during a typical sunny day. This animation was combined with actual footage of the Alternative Energy Center and presented for Innov8 2012.

Solidworks is a parasolid solid modeling CAD program used for engineering products. It utilizes a parametric feature based approach to create models and assemblies. Using dimensioned drawings of the components, parts are modeled to scale. Each part is modeled and assembled in Solidworks and then brought into the scene. Before the model was ready to be imported to the Unity 3D scene, textures were added in 3ds Max Design. These textures give the model a much more realistic view. To be able to import the model in 3ds Max Design, the model was saved as a stereolithography (STL) file in Solidworks which converted the Solidworks model into a mesh of triangles wrapped around the model. Every part was saved as a different STL file and had to be imported individually into 3ds Max Design. Although saving the entire assembly as one STL file is an option, it would not save time because the model would then have to be separated into different parts to allow different texture applications to each part.

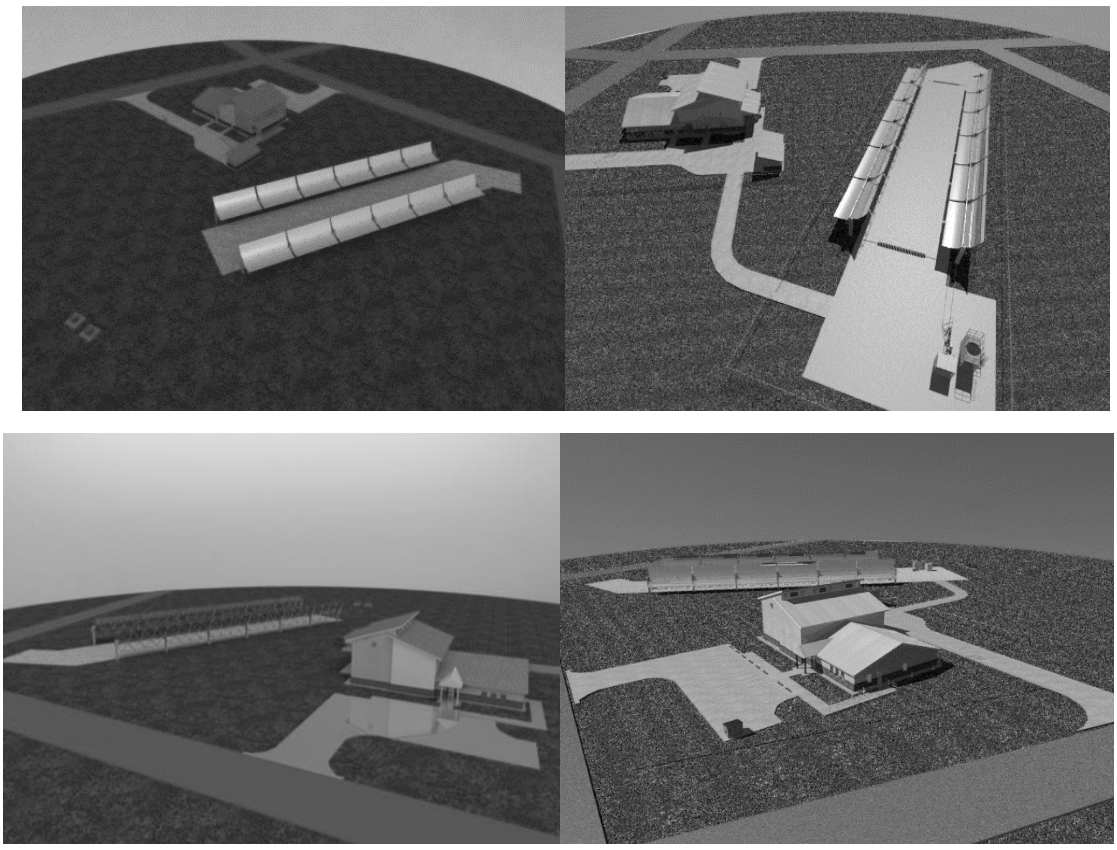

Figure 6: Rendered Solidworks model on left with corresponding rendered 3ds Max Design model on the right

Figure 6 shows two Solidworks rendered images and similar views of the images that were rendered in 3ds Max Design. As Solidworks is primarily for engineering design, the texture mapping and shading effects are of no comparison to the capabilities of 3ds Max Design.

3DS Max Design

3ds Max Design can be used to create environments that look almost real, giving more convincing results with several modeling techniques. This software is primarily used for game development has several lighting techniques and modifiers. Beautifully colored renderings of very high resolution give it a much more lifelike dimension.

Adding textures

Using several features in 3ds Max, such as Unwrap UVW, textures were added to the model. The quality and definition of the textures brought the model are closer to the actual appearance. When the scenes geometry is rendered the shading effects on the lighting, materials, colors, shadows and environment is shown giving a much more realistic view. *Figure 7* shows the heat exchanger used to exchange heat from the refrigerant to the water coming from the cooling tower. The first image on left is a rendered image in 3ds Max Design after importing the model from Solidworks.

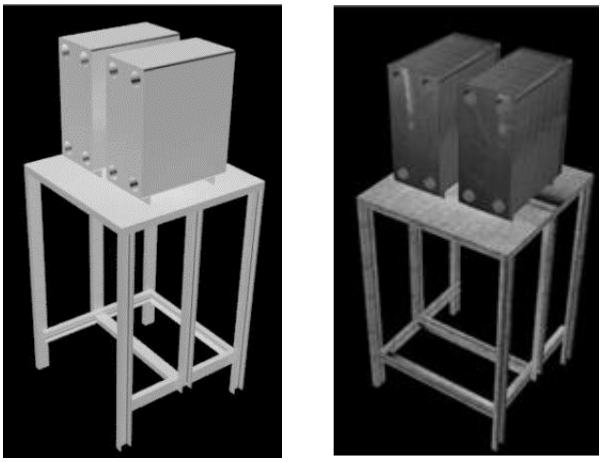

Figure 7: Heat exchanger rendered in 3ds Max Design before and after texture is applied.

The second image on the right shows the heat exchanger after a mapped texture is added giving it a much more detailed view. To add this texture initially, pictures had to be found and edited to scale. Then, using the bitmap tool and bump characteristics, the textures were applied. The unwrap UVW modifier is then used with the flatten mapping option to perfectly contour the mapped geometry. The UVW coordinate system, similar to the XYZ coordinate system, is used to specify how bitmaps are projected onto an object. The UVW modifier is applied to an object to control how mapped material appears on the surface of the object. This allows the fins in the heat exchanger in *Figure 7* to have a 3D effect without having to model each individual fin.

Animations

Viewing a series of rendered still images in quick succession allows the user to perceive them as continuous motion. This illusion of motion comes because each still image or frame is held in the vision system for a short time. Animations are not only more captivating and attention grabbing, but they also allow the user to view processes in action. Explaining how the solar collectors track the sun and collect solar energy is much easier with an animated model. Key points were shown in text boxes below the animations so that users could understand them without any instruction. The animations are a breakthrough in bringing the solar field model to life and explaining key features. *Figure 8* shows a series of images of the parabolic troughs tracking the sun from east to west throughout the day.

Figure 8: Rendered 3ds Max Design animation showing south view of the parabolic troughs tracking the sun throughout the day.

Unity 3D

A walk-through game was created using Unity 3D giving the users the opportunity to tour the model as if actually walking through it. The solar field model was imported into Unity 3D from 3ds Max Design in FBX format. A terrain was created surrounding the model adding grass, hills, trees, and wind. The first person controller prefab was dragged into the scene view from the standard assets folder in the hierarchy. The scale of the first person controller had to be adjusted to be the normal height of someone walking through the model. The first person controller was then moved to the desired start location of the game. The control of the walkthrough camera is the keyboard by default and a mouse control script was also added to have more control. In the virtual reality lab where the demonstrations are held, the projection screens are on the opposite side of the computers. Therefore a joystick script was added so that a PlayStation remote could be setup to control the movement. This way the game player could stand or sit right next to the screen while walking through the game. Unity 3D is a highly powerful game engine that is relatively simple to use and has high end graphics quality that is always improving. The support for Unity 3D is vast with online tutorials, forums, and YouTube videos. The support community helps considerably to grasp concepts and further knowledge to rapidly develop

proficiency. Unity 3D has exceptional realistic physics; softbodies, rigidbodies, colliders, and more are easily attached with components.

Importing model

Unity can import various types of 3d models, texture maps, audio, etc. For Unity 3d import from 3ds Max Design, the model is exported as an FBX file with embedded media. FBX (Filmbox) is a file format, acquired by Autodesk in 2006, that uses an object-based model allowing the storing of motion data along with 2D, 3D, audio, and video data. This allows the model to have all textures and animations when being transferred to Unity 3D.

Adding animation and sound

Animations are added to the scene such as the grass and trees swaying because of wind, smoke rising from the gasifier exhaust, and a few birds moving around. These animations aided in bringing the scene to life, giving movement instead of just only a stagnant model. For educational purposes animation is added to the solar field mimicking the mechanical activity during power generation. The solar troughs rotate along the axis, the cooling tower has water trickling down the sides, and the green machine audibly runs when approached.

Game in iOS and Android

Using Unity 3D software, the same game can be exported to several types of mobile devices including: iOS (iPhone, iPad), Android, Blackberry, Windows 8 phone, along with a web and flash player that can be accessed from some mobile devices. The model was originally brought into Unity 3D so that an iOS application could be created allowing the game to run on an iPhone. In order to do this, the control setup had to be changed to tap control so that the walkthrough game can be controlled with the touch screen device using projected thumb pads. The file size of the model was an issue in that the app would run very slowly. The walkthrough game was then put on a Galaxy II tablet to resolve this issue. The tablet ran the Ice Cream Sandwich version of Android. This version had a 40MB limit for the application before it would crash. The application does run but many of the models in the game were taken out to decrease the file size. This left the game relatively bare with just the solar field and research building models.

Decreasing the size of the model is not an easy task due to multiple software platforms being used. The file would initially have to be reduced in Solidworks by saving it as a coarse STL file, then again in 3ds Max Design by decreasing the poly count. Afterwards, all textures had to be reapplied in 3ds Max Design before exporting as a FBX file to import into Unity 3D. The imported models in Unity 3D then had to be minimized. Models such as furniture, appliances, computers, plants, boxes, crates, vehicles, etc., were imported to mirror the actual Alternative Energy Center.

Adding interactive capabilities

In Unity, one can code in UnityScript, C#, or Boo. Which UnityScript is similar to Javascript, C# is similar to Java and Boo is similar to Python. There are also a few visual scripting solutions in the Asset Store. The UnityScript is used for various purposes in this game. The initial scripts added were popups showing actual photographs and explaining different technologies in the research center. This consisted of adding triggers and colliders to the scene and scripting the popup display. Next, triggers are brought into the scene that allow the

user to turn on various components of the solar thermal system, such as the solar tracking system, the cooling tower and the green machine. These are animated showing the parabolic troughs rotating to track the sun throughout the day, water trickling down the cooling tower to be air cooled, and the green machine audibly running to produce the electricity.

Student Demonstrations

Demonstrations were held in the VR lab during several events throughout each semester such as Innov8 and Engineering and Technology Expo Week. During these demonstrations, groups of students were brought in and given a virtual tour of the Alternative Energy Center on three 150 inch rear projection screens set up in a cave design. This immerses the students in the educational demonstration.

In *Figure 9* a demonstration of the parabolic troughs collecting energy for the sun is shown to a group of high school students. The project building is on the left screen, the parabolic troughs in the middle and the power block for the solar thermal plant on the right.

Figure 9: Game demonstration to high school students in VR lab.

Initially the students are given a virtual tour that takes them through the project building, visiting the office, lab and warehouse where the torrefation and gasifier units are housed. Informational popups appear with actual photographs during various points of the tour explaining the research center and various alternative energy technologies. Afterwards the tour extends to the solar field where students are given an explanation of the components of the solar thermal power plant and the process of collecting energy from the sun and converting it into electricity. During this tour an additional scene is entered when approaching the Green Machine. The Green Machine is the main component of the power block and is responsible for turning the heat into electricity and sending it into the grid. In this scene an enlarged view of the Green Machine is shown and gravity is removed so that the user can float around the machine while various components of it are explained.
Only one person can control the game at a time so that after the initial narrated demonstration students are given an opportunity to play the game themselves. The students are very eager and excited to have this opportunity and take turns exploring the solar field and Alternative Energy Center.
Students describe the immersive demonstration experience as feeling like they are there in the virtual world. A comment was made that it makes learning more interesting as it almost feels hands on. The overwhelming

majority of other demonstrations given that day around the College of Engineering were said to be boring and hard to understand. Not only were these demonstrations described as being interesting but, students also commented that they were able to understand the concepts and it aroused their curiosity to learn more as questions were asked following the demonstration.

Future Goals of the Project

There are many goals for the future of this project and several areas of potential improvement. Currently, control scripts are being written to give the user more interactive capabilities throughout the game. There could be several more scenes the user could enter with different learning objectives in each scene. Several more components such as the newly added sun tracker could be modeled and added to the scene. Once the scene and interactive capabilities have been maximized, then introducing a narrative with directly linked educational content will be explored. Several levels of learning goals and rewards with immediate feedback can be added to motivate players. If increasing the scene size to better accommodate the game would be of interest, then surrounding structures would be modeled and added to the game.

Having the game web based with the ability for students to play in a web browser is of interest. That way it could be easily accessed remotely and utilized without having to download any software. There could also be a way students could log in and have profiles and assessment percentages associated to their user name. This way teachers could access there learning progress to make sure they are keeping up.

Conclusion

Playing video games is a fun and exciting way to learn when compared to traditional homework. There is strong potential for educational gaming to incorporate scientific concepts in which students are able to develop proficiency just by playing. As stated previously this convergence of education and gaming technologies can be the future of education. The Alternative Energy Center game has proven to be a great success at gaining attention from students and arousing interest in alternative energy technologies. With the addition of a narrative, three levels of goals and immediate feedback, the planned future of the game will provide a fun educational experience.

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Cultivating a Community of Truth Through Critical Pedagogy When Faced with Resistance: Teaching My Gender Students How to "Ride the Bus"

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Abstract

This essay will identify how the authors confronted a community of resistance in a Gender and Communication classroom and turned it into a community of truth and tolerance. Working from a theoretical framework of Critical Pedagogy and the work of Parker Palmer, the authors will explore how the classroom is often seen as a culture of fear and disrespect. This culture of fear needs to be confronted by identifying a community of truth as found in two different models of truth. After exploring how to achieve a community of truth when faced with resistance, the authors will explain in great detail the application of a metaphor about "riding the bus" and how this metaphor has sustained them when faced with resistance.

KEY WORDS: Critical pedagogy, teaching, gender, fear, Paulo Friere, Parker Palmer.

"I have come to the frightening conclusion that I am the decisive element in the classroom. It is my personal approach that creates the climate. It is my daily mood that makes the weather. As a teacher, I possess the power to make a student's life miserable or joyous. I can be a tool of torture or an instrument of inspiration. I can humiliate or humor, hurt or heal. In all situations, it is my response that decides whether a crisis will be escalated or de-escalated and a person humanized or dehumanized."

-Haim Ginott

1. INTRODUCTION

When I first began my teaching career over 25 years ago I had a habit of committing a very bad joke. When my students would complain about an assignment or whine in class about schoolwork, I would jokingly hold up my grade book and say, "Who holds the grade book?" There might be a few murmurs but the act would generally quiet the class down and we could move on. My feeble attempt to diffuse the situation was not meant to be mean, but merely to allow me to move on to the next issue at hand.

I thought little of my actions until I received a student course evaluation that declared "Kevin is on a total power trip. He threatens us with bad grades if we don't do what he says." I was stunned and horrified. I realized I had mistakenly turned my classroom into a power struggle. That was the last thing I wanted to do but as a young graduate student starting his teaching career, I found myself in the middle of one of the many mistakes I have made in my career. I began to research issues of power in the classroom and found myself emerged in the literature of Critical Pedagogy. As I began to incorporate the works of people like Paulo Friere and Parker Palmer into my curriculum and classroom, I felt I had begun to remove much of the power

differential from my classrooms. I no longer asked, "Who has the grade book?" and I began to see where I was making mistakes.

A little over 10 years ago, I began teaching a course on Gender and Communication. I lobbied successfully to have the course added as an upper division elective to the General Education curriculum at the university where I taught. Imagine my horror during the first semester of teaching a section of Gender and Communication to a General Education audience when one student proclaimed in front of the entire class "this whole class is bullshit!" Once he spoke up, I found that this student was not alone. A few other students appeared to be so threatened by the course content that they were visibly angry in class.

I found myself wanting yell at them, "Don't you understand that your gendered identity has been socially constructed by the dominant cultural norm!!!" But to do that, I would be returning to a power paradigm that I had worked so hard to remove. I needed to figure out how I could unite all the different groups of students in the classroom but not use force or power.

To answer this question, I returned once again to Critical Pedagogy and the work of Parker Palmer and his insightful work *The Courage to Teach*. In Critical Pedagogy I found the challenge to eliminate power from the classroom and give a voice to every student. In Palmer I was reminded of how the classroom is a masked culture of fear and once I realized that, I could quickly turn my attention and energy to uncovering the culture of truth that was right in front of my eyes. My reading challenged me to confront the fear in my class and find some way to discover the truth lying in wait. I also had to do this without creating a power struggle.

My brainstorming led me to create a metaphor that I began using in class that leveled the playing field for everyone involved. The metaphor involved using the concept of "riding a bus." We are all on the same bus ride when exploring our gendered identities. The challenge lies in understanding that where we sit on that bus affects our perception of what we see while riding the bus. Once the bus stops and we all get off, we see that we have all been on the same journey together. Taking the ride allows students to share their version of the journey, which fosters a community of truth and defuses the community of resistance. This essay will explore Critical Pedagogy and Palmer's cultures of fear and truth and will connect theory with practical anecdotes to provide relevant tools and strategies designed to confront resistance and enhance the classroom experience for both student and teacher alike.

2. THEORETICAL FRAMEWORK

Theory informs practice. It is the habit of many to align themselves with one theory and to claim its elements as their own. While understanding the power of such alignments, I instead find myself claiming elements of several theorists. I am deeply informed by the work of Parker Palmer and Critical Theory in my search for a theoretical framework.

As an educational theory, Critical Pedagogy expresses the belief that educational systems are based on power structures and that schools tend to serve the interests of those in power, intentionally or unintentionally (Billings 2008) [1]. In our schools, norms for social interaction, expectations and behaviors are perpetrated without rigorous review. Biases are taken for granted. Critical pedagogy expresses a belief that teachers and students must constantly question their world, both inside and outside the classroom. Critical pedagogy is committed to the transformative power of education. It has a strong emphasis on diversity (Gay 1995 [3];

Nieto, 2002 [6], Billings; 2008 [1]). Freire (1974) calls educators to name, to reflect critically, to act [2]. Winks (2005) marks these three phrases as the best definition of critical pedagogy [9].

Critical pedagogy has its roots in the work of Paulo Freire. Freire, a Brazilian educator, worked to develop a method of teaching literacy to indigent farm workers in order to empower them to vote. Freire published his theories of social justice and education in *Pedagogy of the Oppressed* (1970) [2]. Critical pedagogy works against the norm that would reproduce current power structures, or devalue inquiry, skepticism and disagreement (Billings, 2008 [1]).

Essential to critical pedagogy is the concept of critical consciousness. Critical consciousness is "an awareness of the invisible oppression in society through education and activism" (Billings, p.3 [1]). Historic examples of invisible oppression are extensive. The issue of slavery in Great Britain and the United States is one example. The issue of suffrage is another. Billings reminds us that it is far easier to see "invisible oppression" through an historic lens than it is to recognize it in the here and now. Today, critical consciousness might encourage individuals to question "English only" policies in the United States or the use of tracking systems in education. Critical consciousness is a necessary element of critical pedagogy. Awareness is essential and awareness comes through the disequilibrium of questioning discourses.

Another essential component of critical pedagogy is hidden curriculum. Giroux (1983) added strength to our understanding of critical pedagogy in his work on hidden curriculum [4]. This concept builds on Freire's belief that much of what is taught is unquestioned. Hidden curriculum notes that much of what is learned in school is not part of the official curriculum but rather involves subtle socialization in norms and mores of social interaction. Hidden curriculum supports the needs and mores of the dominant culture. Winks (2005) lends clarity to how it appears in our schools [9].

The hidden curriculum can be seen in schools when little boys are called on more than little girls, when only Eurocentric histories are taught, when teenage girls are socialized to believe that they are not good in math and sciences, when heroes but not heroines are taught, and when counselors track nonwhites to classes that prepare them to serve (p.47) [9]. Hidden curriculum is as dangerous in our schools as undercurrents are to the swimmers in the local river.

A third component of critical pedagogy is that of dialectic. Dialectic is the tension between opposing thoughts, ideas, concepts, values and beliefs (Wink, 2005 [9]). It is essential to note that the position of dialectic is a normal part of the learning process. While binary systems inform us and often are at the root of technological advances, in education, holding opposing tensions is often at the root of profound understanding. Consider the honest thinking of Winston Churchill who stated: "I am always ready to learn although I do not always like being taught" (Hume, p.24 [5]).

Dialectics are important in the learning process. Wink further explained, "Dialectic involves seeing and articulating contradictions; it is the process of learning from the oppositional view. Dialectic brings to light a more comprehensive understanding of the multiple facets of the opposite. As we learn while teaching and teach while learning, we are in a dialectical process (p.41) [5].

It is impossible to discuss critical pedagogy without discussing literacies. Critical pedagogy recognizes the many forms of literacies that inhabit our world. Refusing to limit the discussion to the reading and writing of language, literacies implies all of the ways in which individuals and societies make sense of

their world (Winks, 2005) [9]. Literacies are defined as reading, writing and reflecting (Winks, 2005) [9]. It is our underlying ways of knowing, thinking and making complex meanings. Forms of literacies include academic literacies, functional literacies, workplace literacies, emergent literacies. This list is not exhaustive. The literacies we use to understand the complexities of life is extensive. There is great power in literacies, power to name the world around us.

Equally powerful is the ability to silence. Silencing is often unexplored in education. It is often not consciously intended. It is often not consciously felt by the individual or individuals whose voices have been stilled. Winks (2005) explores it in the following

Often,
Those who have more, silence those who have less;
Those who are from the dominant European American culture silence
Those from the non-European American cultures;
Boys silence girls;
Men silence women.

Often,
Men don't know it;
Boys don't know it;
European Americans don't know it, and
Those with more don't know it (p.58) [9].

Critical pedagogy is dedicated to giving voice to each individual who inhabits a classroom or a community. It is about the thoughtful, analytical understanding of power and how it forms our institutions and our selves.

To move from the work of a Brazilian lawyer turned educational activist to an American Quaker from the Midwest may seem something of a stretch but in reality, much of their work is compatible on several levels.

Palmer (1998, 2007) expresses his beliefs regarding pedagogy in his classic *The Courage to Teach* [7]. Palmer moves from a focus of educational pedagogy on the learner or the methodology of delivery systems, and focuses squarely on the interior life of the teacher. His haunting question remains "Who is the self who teaches?" This focus moves us away from educational techniques and into the realm of personhood.

An emphasis on the "who" of teaching, necessarily removes us from a discussion of external factors and requires us to look deeply within. Palmer asks the question; "How does the quality of my selfhood form—or deform—the way I relate to my students, my subject, my colleagues, my world?" (p.4) [7]. Such an interior focus may seem at odds with Critical Theory's focus on power structures however external systems are changed by interior thoughts and commitments. The two are not independent of each other. Palmer argues for a strong spotlight to be placed on the interior life of the teacher in an effort to effect change in the external systems of education.

Identity and integrity are at the core of Palmer's work. These two elements comprise the core of the self that teaches. Identity is defined as

> The evolving nexus where all the forces that constitute my life converge in the mystery of self: my genetic make-up, the nature of the man and woman who gave me life, the culture in which I was raised, people who have sustained me and people who have done me harm, the good and ill I have done to others and to myself, the experience of love and suffering—and much, much more (p.14) [7].

Integrity is discussed as the ability to relate to those forces "in ways that bring me wholeness and life rather than fragmentation and death" (p.14) [7]. The manner in which each individual teacher integrates the forces or discourses of life into their person has an enormous impact on the self and the work of teaching that the self engages in.

This focus on self does not mean that Palmer is opposed to discussing methodology. At the core of Palmer's thoughts on methodology is the principle of paradox. While appreciative of the scientific advances that a binary system of thought has given the world (p.64), Palmer reminds us that paradox is an essential tension in teaching, just as paradox is an essential practice in breathing [7]. Perhaps the paradox that most deeply touches any educator is Palmer's recognition that "the knowledge I have gained from the thirty years of teaching goes hand in hand with my sense of being a rank amateur at the start of each new class" (p.66) [7].

Teaching is immersed in paradox. Teaching requires the intellect and the heart to work in concert. Teaching requires intentionality to merge with flexibility. Teaching honors the individual stories of students and the corporate stories of the disciplines. Good teaching supports solitude and embraces community (p.77) [7]. These paradoxes are as essential to methodology as state standards are to outcomes.

Critical pedagogy and the focus on the interior life of the individual who teaches are the theoretical frameworks from which this experience is discussed. They are the lenses through which I viewed my experience in the classroom.

3. THE CLASSROOM

After more than twenty years of teaching I have come to understand that good teaching does not come from learning a certain technique or formula. Teaching cannot be reduced to such prescriptive measures. Instead, good teaching comes from the identity and integrity of the teacher. I firmly believe that learning is a process, not a final performance. It is on going and needs to be allowed to grow and evolve for each individual. The learning process involves allowing each student to discover what is important to him or her and it is my responsibility to help provide a safe environment where that learning process can take place. In his work *Gestalt Therapy Verbatim*, I have found author Fredrick Perls (1969) able to summarize this principle when he argued,

> Right now I can only hypnotize you, persuade you; make you believe that I am right. You don't know. I'm just preaching something. You wouldn't learn from my words. Learning is a discovery. There is no other means of effective learning. You can tell a child a thousand times, "the stove is hot." It doesn't help. The child has to discover for himself. And I hope I can assist you in learning, in discovering something about yourself. (p. 1) [8]

I think the mistake that many professors make is that they truly believe that as a "professor" it is their job to "profess" to their students how much they know and make sure to remind the students on a regular basis how little the students know. As a result, long lectures ensue with students expected to hang on every dripping syllable and are then punished when they are unable to regurgitate those same syllables verbatim on an exam. This is not dialogue, this is monologue, and nothing very good ever comes out of monologue. Monologue is driven by power. I think teachers forget that they possess the power to create an environment that can either help students want to learn or can keep them from caring about learning at all.

The type of environment Perls refers to must come from a place where "connection" happens – where student and teacher connect not because the teacher is cool or popular, but connect because there is trust. Parker Palmer (1998) argued, "Good teachers possess a capacity for connectedness. They are able to weave a complex web of connections among themselves, their subject, and their students so that students can learn to weave a world for themselves" (p.11) [7]. Connections can only emerge from dialogue – not monologue.

It is very tempting when teaching a course such as Gender and Communication to want to scream out in monologue "Look, everything you believe about yourself is wrong!! You've been brainwashed by dominant cultural norms!!" But that is preaching, not teaching. Real teaching involves making the type of connections that allow for discovery. A person is much more likely to embrace an ideology when they believe they have discovered this new found truth for themselves. Discovery, however, is often only obtained through dialogue. Each student must be able to share their story, their personal narrative in an environment where that narrative may draw ridicule or disagreement. My job as a teacher is to create a classroom environment where these narratives can be told safely.

Thus I am confronted with my first challenge – a safe environment where dialogue flourishes.

4. THE CULTURE OF FEAR

My challenge is compounded when I factor in the reality that a classroom is a breeding ground for fear on every level. Both teachers and students are afraid of failing. Teachers fear not being validated as a good teacher with good student course evaluations, not having their love for the subject matched by a room filled with eighteen and nineteen year olds, not engaging in cutting edge research and publishing in the "right" journals, or not being respected by their colleagues and peers. These fears can unknowingly turn the classroom into a battlefield where egos are defended and dialogue is quickly replaced with monologue because monologue allows for greater control [and power]. Teachers often get labeled as arrogant at this point as they defend their positions and ideologies and must always be right because if they cannot, then their fears are no longer imagined but real. Arrogance is often used as a mask for fear.

The more I am afraid the greater my level of resistance. If I do not resist dialogue, then my fears may overwhelm me. I must insist on monologue to mask my fear.

If blinded by their own fears, teachers can quickly forget how afraid their students are. When confronted with the possibility that how they have viewed the world (or maybe have been told how the world is to be viewed) for more than eighteen years, the fear can become crippling. Parker Palmer (1998) writes of this fear when he reminds us "Students, too, are afraid: afraid of failing, of not understanding, of being

drawn into issues they would rather avoid, of having their ignorance exposed or their prejudices challenged, of looking foolish in front of their peers" (p. 37) [7].

Courses such as Gender and Communication can feed these types of fears like a wildfire. When told that they are born with their sex but have chosen their gender based upon a number of factors, the threat to their own identity can confront students with a paradigm shift that can be scarier than anything they have ever experienced. Even if they are not confronted with a paradigm shift, students can find themselves having to risk self-disclosure and potential ridicule should they dare to engage in dialogue and share their stories. The Gender classroom can become a living nightmare of fear for the ill prepared student especially when led by a teacher who is crippled by his or her own fears. In order for true dialogue to emerge both teacher and student must be aware of and confront these fears.

Additionally, a classroom such as Gender can become a breeding ground for issues of diversity. If personal narratives are dialogued, then multiple perspectives on any topic must also be embraced. This gives birth to a room filled with diversity that only exacerbates fear. Palmer (1998) identifies this problem by explaining "If we embrace diversity, we find ourselves on the doorstep of our next fear: fear of the conflict that will ensue when divergent truths meet" (p.38) [7]. While a small portion of the population have learned how to manage conflict in a positive manner, it is safe to say that a majority of people tend to either avoid conflict for fear of it damaging the relationship, or they confront it head on with a "win-lose" mentality and embrace conflict only because they want to win the conflict.

To tolerate narratives that are the antithesis of your worldview creates a wonderful opportunity to engage diversity. It also engorges the culture of fear. It becomes very, very important for me as a teacher of a course such as Gender and Communication that I remember that my classroom has the potential to become this breeding ground for fear. If not, I can quickly miss-diagnose my student's attitudes and responses. How I diagnose my student's mindset has a tremendous impact on the type of cure I offer them for their fears.

Thus I am confronted with my second challenge - to confront and diffuse the culture of fear for both my students and myself but without the introduction of force or power.

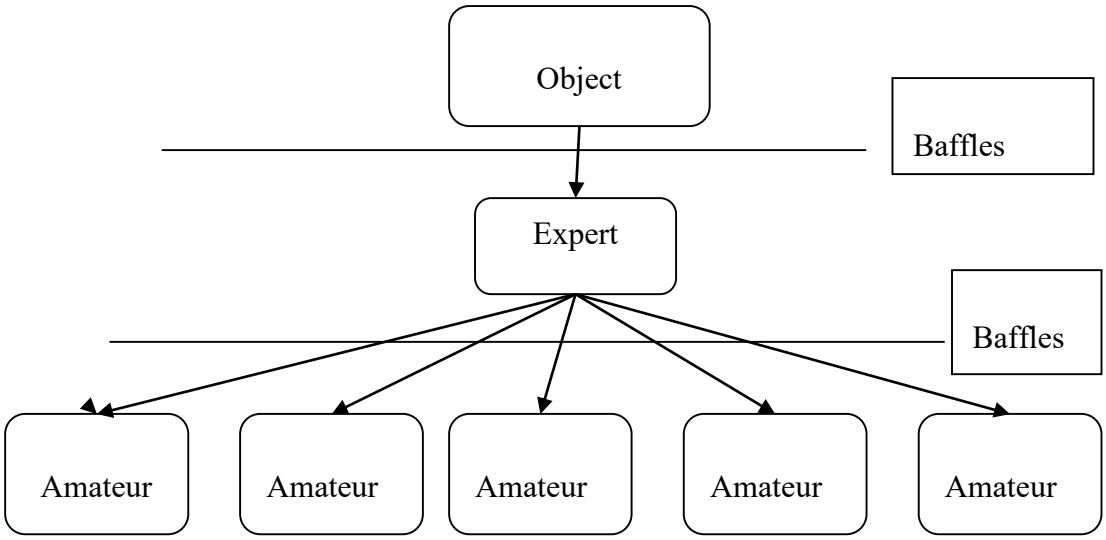
5. A COMMUNITY OF TRUTH

In the Socratic tradition, the purpose of dialogue is to foster the discovery of truth. If true dialogue is to happen in the classroom, then the true goal of the classroom is to discover truth. But truth can be quickly buried in a culture of fear. The goal then is to create an environment where truth is practiced. But truth telling has functioned far too long from a flawed model. The dominant model of truth-knowing and truth-telling functions from a "top-down" perspective. Palmer (1998) identifies this problem and argues that there is a difference between the mythical but dominant model of truth telling and a true community of truth [7]. The difference lies in the four major elements of the mythical model as described by Palmer,

There are "objects" of knowledge that resides "out there" somewhere. There are "experts" who are people trained to know these objects. There are "amateurs" who are people without training and full of bias who depend on the experts for pure knowledge of the objects. Finally, there are "baffles" at every point of the transmission that allow knowledge to flow downstream while preventing subjectivity from flowing back up. (p.100-101) [7]

Information is clearly a monologue and flows down, from the object rather than the object being the center of attention. (See Diagram A)

Diagram A



Palmer further explains the problems of this model when he argues,

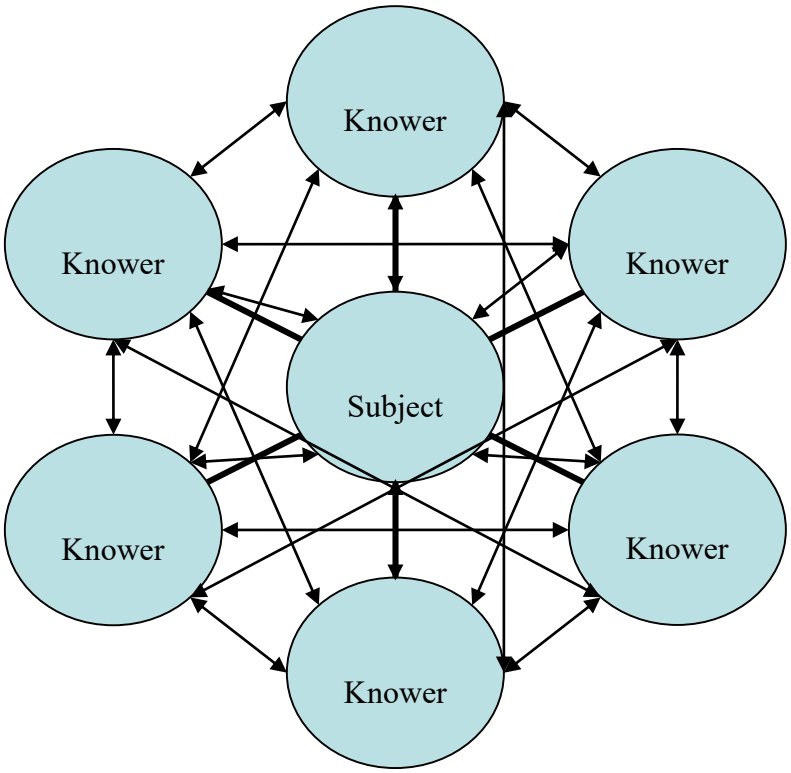
In the model, truth flows from the top down, from experts who are qualified to know truth to amateurs who are qualified only to receive truth. In this myth, truth is a set of propositions about objects; education is a system for delivering those propositions to students; and an educated person is one who can remember and repeat the experts' propositions. The image is hierarchical, linear, and compulsive-hygienic, as if truth came down an antiseptic conveyer belt to be deposited as pure product at the end. (p.101) [7]

Obviously, this traditional model does little to foster dialogue as it screams monologue. An alternative model is needed, one which radiates dialogue. Palmer (1998) provides this alternative in the form of a "community of truth" which places the "subject" in the middle surrounded by "knowers" (p.101) [7]. Palmer explains "In the community of truth, there are no pristine objects of knowledge and no ultimate authorities . . . The community of truth is, in fact, many communities . . . At the center of this communal circle, there is always a subject" (p.101)[7]. By switching truth from an object (as in the other model) to a subject, we make the subject the center of our attention and the result is that we give it respect and authority that is normally reserved for human beings. This relationship begins, Palmer argues, "When we allow the subject to occupy the center of our attention" (p.103) [7]. (See Diagram B)

Palmer elaborates on how the community of truth functions when he explains,

As we try to understand the subject in the community of truth, we enter into complex patterns of communication – sharing observations and interpretations, correcting and complementing each other, torn by conflict in this moment and joined by consensus in the next. The community of truth, far from being linear and static and hierarchical, is circular, interactive, and dynamic. (p.103) [7]

Diagram B



Given this model, I am left with a third and final challenge – how to create and nurture a community of truth in my classroom.

6. RIDING THE BUS

My challenge seemed daunting. How do I address dialectic without power, foster diverse literacies, address hidden curriculum while removing the critical consciousness and subsequent fear fostered in a class such as Gender? In order to confront and address these issues in my Gender and Communication courses, I knew that I needed to create an environment where dialogue flourished, the culture of fear disappeared, and the community of truth emerged. This was not going to be easy. I realized that I was going to have to accomplish these goals by laying some ground rules and establishing a presupposition for all discussions that everyone in the class would need to understand and agree with. I also had to lay these ground rules through dialogue and not monologue. My solution came in the form of using a metaphor of riding a bus.

On the first day of the semester, I informed the class that we would all be going on a bus trip this semester. I announced that we would be taking a ride south down Highway 1 along the coast from Portland to San Francisco. The story is as follows:

"We will all be boarding the bus for the same destination – San Francisco. Some of you will get on the bus and sit in the front row where you can look out the front window of the bus and see everything possible along the way. That is what you know, what you do, and what you are comfortable with. You will take in everything around the bus and see every detail and embrace it all. Some of you will get on the bus on the left side. That is what you know, what you do, and what you are comfortable with. As we travel south,

you will look out the window on the left side and see the mountains and the trees and all the beauty the hillsides have to offer.

Some of you are going to get on the bus and sit on the right side. That is what you know, what you do, and what you are comfortable with. As we travel south, you will look out your window on the right side of the bus and see the beach, the ocean, the seagulls and maybe some dolphins or sea lions along the way. A few of you are going to head right to the back of the bus to the five seats in a row that look like a nice bed. You are going to lie down and sleep the entire trip and not see a thing. That is what you know, what you do, and what you are comfortable with.

When we arrive at San Francisco, we will all have gone on the same journey together and we will all arrive at the same destination together. But some of you will get off the bus and say, "Wow, what a journey, those mountains were incredible!" Some of you will get off the bus and say, "What are you talking about? There were no mountains on that journey, all we saw was this awesome ocean." The left side mountain people will exclaim, "What do you mean no mountains? That's all there was for hours and hours. There wasn't any ocean!" Someone will eventually turn to a front of the bus person and ask, "Did you see the mountains?" And they will respond, "Oh, yes I did, it was wonderful!" Then an ocean person will step in and say, "What about the ocean – didn't you see the ocean?" Then the front of the bus people will reply, "Oh, yes, we saw the ocean too and it was wonderful as well!" While they are all standing there arguing, the back of the bus bench people will exit the bus and say they have no idea what either of these people are talking about.

How can this be? How can a group of people all take the same journey together on the same bus, yet have such completely different perspectives of what happened during that journey? The key is "perspectives." Just because the mountain people did not see the ocean does not mean the ocean is not there. Just because the ocean people did not see the mountains does not mean the mountains were not there. Just because the back of the bus people did not see any of it does not mean none of it was there! It is all real and it is all valid.

I hope that during this semester you get to look over at the other side of the bus. If you are a mountain person, I hope that you can at least learn to glance over at the right side and see the ocean. You do not have to like it and you do not even have to enjoy it. I just want you to look over and say, "Hmmm, I did not know that was there." The same thing goes for the ocean people. Every now and then, I just want you to glance over at the other side of the bus and see that the mountains are indeed there.

For some of you, my desire is that you discover that the ocean is there for the very first time. And not only do you discover that it is there, I hope that maybe a few of you scoot over and sit in the seat on the right side for a while. Some of you may even say, "Hey, this is really much better than the mountains. I think I will sit on this side of the bus for the rest of the trip." I hope the same thing happens for some of you ocean people as well. This will happen in part when you on the ocean side of the bus begin describing what you see to the people on the mountainside of the bus. You people on the mountainside of the bus do the same for the people on the ocean side. For those of you sitting in the front of the bus, I expect you to help everyone else by describing what you see from your perspective since you see both sides at the same time. Then maybe, just maybe, those of you who are in the back of the bus, if you can at least just listen to the descriptions – you do not even have to look out any windows, just listen to the conversations – I hope you can at least understand that the descriptions you hear are very real to the people describing it for you.

Just because it is not on your side of the bus does not mean it is not valid or very, very real for that person who is on that side of the bus. So, are you ready? Let's ride the bus!!"

This inclusion of the "back row sleepers" is a very important piece of the puzzle because it helps to remove power from the situation. When given the option to not engage the front, left, or right sides of the bus the student does not feel forced to have to engage in the journey. While no one should get to "ride the bus for free," the use of power and/or force is not teaching or learning. By being enrolled in the class, the students must go on the journey but the goal is to try to remove any power or pressure to "have" to engage in any paradigm shifts.

At the beginning of each class, I write a brief lecture outline on the board. At the top of the board, every day, I always write, "Let's Ride the Bus," "The Bus is Ready to Roll!!" or "The Bus is Leaving the Station!!" I remind the student's daily of our ride together. This sets the foundation for classroom discussions. When a topic is addressed that someone says they cannot relate to, I remind them that they are looking out a different part of the bus right now. When two people disagree on a topic, I can remind them that they are merely looking out different sides of the bus right now. Neither one is right nor wrong – in fact, they are both right in their views. It is not a right verses wrong issue. It is merely a "what side of the bus are you on" issue. Falling back upon this metaphor has allowed me to diffuse many a potential conflict in the classroom. The opportunity to teach tolerance toward diversity is quite obvious.

7. CONCLUSION

By using something as simple as a metaphor of riding a bus, I am able to address all of my challenges. By embracing multiple perspectives and allowing each person to share their stories, we find ourselves in the middle of dialogue. The students begin teaching each other and the class begins teaching itself. As the dialogue flourishes and students begin to feel safe, the culture of fear disappears. When each story is validated, there is little fear of failure. When no one is allowed to invalidate or belittle a story, fear of rejection is diminished. When truth is collectively shared through individual stories, a community of truth emerges. Truth is no longer an object to be passed on by an expert to some amateurs. Truth becomes the central subject around which the entire community gathers and discovers and explores. Hopefully, somewhere along the line, as a result of all of the above variables, the struggle for power dissipates.

Once when a male student expressed his support of rape myths (look what she was wearing, she deserved it!) a female student was able to speak up and tell her story of being raped while wearing a sweat suit. The male saw out of the other side of the bus and even changed seats. But only because a community of truth existed and the culture of fear had been removed. He brought a dialectic based on a paradigm of power but because power was not a dominate tool in the classroom, a rape victim felt free to engage in dialogue. Literacy's were shared and understood and voices were expressed.

Once, when a female student shared that she did not mind being whistled at and honked at by passing cars, another female spoke up and shared her story of how that type of activity led to her being sexually assaulted. The first female was able to see how the act of objectification could dis-empower a person and cause another person to want to oppress her with power. This hidden curriculum want beyond anything I

could have prepared or planned for that day. Males in the class also heard how most of the women were hurt by this type of intimidation and expressed that they had no idea it was so hurtful.

One time when a male shared that from his side of the bus, he enjoyed women used as set decorations in advertisements, a woman shared her journey into eating disorders and her shattered self-esteem because she could not look like the models in the ads.

Not everyone changes seats on the bus. In fact, some students embrace the back row. This raised a daunting question for me: "what do I do when a student does not experience a paradigm shift or does not learn?" In time, I began to see it in a different way. Any perceived lack of change was still a teaching victory for me. The dialectic is possibly so threatening that some students chose not to engage in it. They chose silence to be their voice. This demonstrates to me the lack of power in the class. These students do not feel threatened by the dialectic and are content with silence. They do not feel defensive nor do they feel the need to defend themselves. They feel free to choose to disengage. This can only be possible when fear and power are absent.

There is an ancient Chinese proverb that proclaims, "When the pupil is ready, the teacher will appear." Forcing a student to learn introduces power in to the classroom. When that happens learning and teaching stop and the teacher disappears. Riding the bus is an attempt to create the best possible environment for a resistant audience.

Change can be very scary and threatening to many people. A course such as Gender can require a student to have to confront change in his or her ideologies. The threat of that change can create resistance in the classroom. Teachers must be aware of the roots of that resistance and be prepared and equipped to handle it in a healthy a constructive way. When faced with resistance, cultivating a community of truth can diffuse a great deal of the hostility projected into the course and the professor. A simple metaphor such as riding a bus can go a long way to cultivating a culture of truth in which each person can be humanized and valued.

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Top Leaders Attributes in Malaysian Higher Education Institutions: Effect on University Innovation

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Abstract

Transforming Malaysian Higher Education Institutions to an exceptional level has become one of the main challenges in pursuing strategic vision and the ability to strengthen our Higher Education Institutions (HEIs) that could become a medium to the country economic development as well as facing global intense competition. Specifically, the role of HEIs leader is needed to transform their institution to a new paradigm. Thus HEIs leader have to furnish and equip themselves with a high leadership attributes. The main objective of this study is to investigate top leader attributes in Malaysian HEIs and it effect toward university innovation. The questionnaires were distributed to managers from various faculties and departments' of public HEIs in Klang Valley. The findings shows, leading changes attributes of leaders is the most significantly related and asserted as the most difficult leadership challenges faced by the leader in enhancing and encouraging the spirit of innovation in HEIs.

Keywords: business acumen, traits, leadership attributes, building coalition

1. Introduction

Malaysia's endeavour to achieve the status of developed nation by the year 2020 has put itself in an exceptional challenge. One of the main challenges in pursuing this strategic vision is the ability to strengthen our Higher Education Institutions (HEIs) that could become a medium to the country economic development as well as facing global intense competition. In fact, the role of HEIs leader is needed to transform their institution to a new paradigm. Furthermore, quality and credibility of HEIs leader is very significant in ensuring the survival of the institution and eventually meeting government's aspiration. Therefore, one of the criteria in selecting potential leaders to manage HEIs is an individual with high business attributes. These criteria is critically important in developing an appropriate strategy to secure financial resource that can be utilize to fund various program or project that benefited the university as well as to the government.

HEIs are currently facing unique and continual environmental challenges, as they endeavour in meeting up demands from various industries. Therefore, effective leadership is required and play a crucial role in leading HEIs through changes as it involves ambiguity, uncertainty and risks. Indeed, effective leaders considered as critical component for an organization success (Voon, Lo, Ngui, & Ayob, 2011). Top leaders in HEIs are recognized as influential since most of the decisions are made by them and without them, organizations decline, lost track and eventually suffer the consequences (Kotler, 2000). Until now, the emergence of approaches that link leadership development to various outcomes is very limited.

Innovation is an essential corporate strategy (Wu & Lin, 2011) and plays an important role for an organization to survive in competitive advantage and rapid changing environment (Damanpour, 1991; Hurley & Hult, 1998 ; Madhavan & Grover, 1998 ; Schumpeter, 1934; Subramaniam & Youndt, 2005; Tushman, Anderson, & O'Reilly, 1997). Hence, nurturing innovation becomes the main challenge for business since innovative organizations are more successful and perform better (Daft, 2004; Farina & Kelly, 1983; Krause, 2004; Montes, Moreno, & Fernandez, 2004). Lack of innovation, will resulted an organization to collapse very quickly (Daft, 2004; Krause, 2004). Company's innovation happen when knowledge resources is fully utilized (Subramaniam & Youndt, 2005).

Therefore, this study focuses to measure three objectives namely :1) to identify the importance of top leaders' attributes in Malaysian HEIs; 2) to examine the importance of business acumen traits among top leaders in Malaysian HEIs; and 3) to investigate the influence of top leaders' attributes in Malaysian HEIs towards university innovation.

2. Literature Review

2.1 Leadership Attributes

Leadership is *"the process of influencing others to understand and agree about what needs to be done and how it can be done effectively, and the process of facilitating individual and collective efforts to accomplish the shared objectives"* (Yukl, 2002, p. 7). Leadership Competency is describes as *"the attributes of high performing leaders needed to produce results"* (Eyde, Gregory, Muldrow, & Mergen, 1999, p. v). Previously, many author focus on leadership (Bass, 1990; Bennis, 1959; Stogdill, 1974; Yukl, 2002) as well as on competency (Boyatzis, 1982; McClelland, 1973; McLagan, 1983; McLagan, 1989; McLagan, 1996; Rothwell & Lindholm, 1999; Spencer & Spencer, 1993; White, 1959).

Quality and effective leadership attributes is important criteria that can influence change. Quality leadership is visualized through effective results while effective leadership is segregated in group or individual traits. Group traits include teamwork, similar objective, dissimilarity, employee dissemination and a knowledge environment while individual traits include independent knowledge, honesty, dedication, compassion of others, and proficiency (Astin & Astin, 2000). Andrews (1967) has highlighted the significance of effective leadership in bringing out innovation while Andrews and Farris (1967) pointed out several leader attributes that might be related to innovation including practical skills, important assessment, inspiring others, and independency. On the other hand, Zaccaro (2001) (2002) Zaccaro, Foti, and Kenny (1991) and Zaccaro, Gilbert, Thor, and Mumford (1991) indicated that effective leadership must possess social appraisal skills or social intelligence.

The Leadership Competency Model (Eyde et al., 1999) includes both group and individual attributes of leaders. This model contains 27 leaders' attributes that was clustered into five dimensions; leading change, leading people, results driven, business acumen and building coalitions. This model was widely used as a research-based model and was applicable to a variety of organizational settings and has been tested in

different culture context (Wang, 2006). Eyde et al., (1999, p. v) stressed that, *"leadership competencies, attributes, and behaviours are more important than managerial competencies."*

Table 1: The leadership competencies model

Five Dimension	27 Leaders' Attributes
Leading Change	Continual Learning, Creativity and Innovation, Resilience, Service Motivation, Strategic Thinking, Vision
Leading People	Conflict Management, Leveraging Diversity, Integrity/Honesty, Team Building
Results Driven	Accountability, Customer Service, Decisiveness, Entrepreneurship, Problem Solving, Technical Credibility
Business Acumen	Financial Management, Human Resources Management, Technology Management
Building Coalitions/ Communication	Influencing/Negotiating, Interpersonal Skills, Oral Communication, Partnering, Political Savvy, Written Communication

Source: Eyde et al. (1999)

2.1.1 Leading Change

Most of us are accustom by our tradition and reluctant to try something new, hence, it is a challenge for a leader to convince others from doing things in usual ways. Leader of change then always become a battle between individual who are seeking change and majorities who are happy with what they always practiced (O'Toole, 1995). In addition, O'Toole (1995) also pointed two reasons why people resist change, first it is attacking custom when we are trying to change human habit and secondly attacking comfort when promoting change, you are attacking the group's comfort and on the other hand, Kotter (1995) noted that successful change begins when an organization focuses on competitive advantage, market position, technological trend and financial performance

Yukl (2002) and Kotter (1995) contended that one of the most important and difficult leadership responsibilities is leading change and challenges faced by the leader is to learn about the business, the nature of change and the task of managing the changes (Nadler & Tushman, 1994). Hence, company normally failed when they underestimate the importance of change (Kotter, 1995)

Manager and employee view change differently where for top leader, change is an avenue in growing business by meeting up operation with company mission, face all obstacles, risk and work as career enhancement, while for employee change is troublesome, invasive and disturbing and therefore not welcome and to overcome this problem, leader should be more empathy, take charge and provide proper guidance (Strebel, 1996).

Efficient leader must be able to come out with initiatives and ensure that the changes penetrate into three levels of the organization i.e. the individuals, the teams and the organization's culture with the development processes cantered on emotional and intellectual learning (Daniel Goleman, Boyatzio, & Mckee, 2002).

2.1.2 Leading People

The function of a leader is as a sustaining player who's eventually, is to motivate and assist others effort (Mumford, Connelly, & Gaddis, 2003). Leading people require leader to possess technical, financial, or operational skills (Wu & Lin, 2011). Sessa, (1998) highlighted two factors that have led to the positive support in the leadership of creative people namely creativity and clear support and encouragement without which it may reduce opportunities for innovation and generation of a new idea (Andrews, 1967; Scott, 1995).

Anderson & West (1998) Bain, Mann, & Pinola-Merlo (2001), Oldham & Cummings (1996), Sosik, Kahai, and Avolio (1998, 1999) have stressed the need for leaders to support creative efforts. In a similar lines Enson, Cottam, and Band (2001) indicated that administrative support, good team work, empowerment, capital and obstacle is connected and contributed to innovation. Cardinal (2001) and Damanpour (1991) on the other hand proposed that leaders is to invent structures that will contributed to creative activities to flourish while Oldham & Cummings, (1996), suggested four key dimensions important in leading creative people i.e. academic encouragement, participation, encouragement and autonomy. Andrews and Farris (1967) proposed that the best predictor of innovation on the part of group members is the leader's technical skills.

2.1.3 Business Acumen

"*Business acumen is keenness and quickness in understanding and dealing with a business situation in a manner that is likely to lead to a good outcome*" (Reilly & Reilly, 2009, p. 1) and surprisingly most of organizations today are lacking of this significant elements. Business acumen from manager point of view is an ability to read and understand numbers or financial literacy and able to react effectively while business analyst defined business acumen as the ability to understand thoroughly the financial status of an organization and to provide strategic measures to overcome it (Rezak, 2012). Business acumen is a knowledge on how organization gain money, concerned with the interpretation of the financial statement, understands best possible approaches, resolutions and measures and it effect toward an organizations. (Green, 2010).

Business acumen has become an important element in achieving a successful for organization's strategic objectives. Strengthening business acumen requires leaders to understand and focus in four critical areas for instance understanding one's thought processes, developing business knowledge, effective use of management processes and management and, leadership skills (Reilly & Reilly, 2009).

In a similar vein, leaders that engaged themselves in developing business acumen will be able to provide a clear vision and as far as possible to closed any gaps that refrain the success of an organizations. A good leader therefore should play their role and value the contribution of their subordinates (Green, 2010). Successful leadership in HEIs requires both business and learning acumen as well as strong leadership skills. Business acumen is a must since a successful learning leader must be a business person first and a learning professional second. Therefore such approaches should be emerged and provide the basis to increase business acumen as part of leadership development.

Rezak (2012) contended that a leaders with business acumen will closed all internal barrier, settle grievances, possessed good communication skill and able to utilized the employee potential for the benefit of the company. Thus, in developing business acumen, which is best developed experientially, organization is supposed to guide employee and direct them to achieve company vision in harmonious environment without any barriers which will reduce waste and promoting innovation. In turn, employees will give their full commitment since their role is well understood and valued by the management. They will then think like business owner think (Green, 2010).

2.1.4 Results Driven

A high performance leaders are supposed to perform beyond an organization, community and deliver result (Schroeder, Van de Ven, Scudder, & Polley, 1989). Leaders are results driven, and they achieve outstanding business results since they experience problems. A knowledgeable leader with sales, marketing, finance, manufacturing skill will produce good outcomes and with continuous changes, leaders are supposed to adjust well to adapt with the changes (Conner, 2000).

Bennis and Nanus (1985, p. 29) revealed that *"leaders are the most results-oriented individuals in the world"*. Result driven program start off with identifying the most crucial performance improvement needed, introduce innovation in management, venture on specific outcome, matches it with resources, tool and action plan to achieve desired outcome (Schaffer & Thomson, 2000).

2.1.5 Building Coalitions

Stevenson, Pearce, and Porter (1985, p. 261) defined coalition as *''an interacting group of individuals, deliberately constructed, independent of the formal structure, lacking its own internal formal structure, consisting of mutually perceived membership, issue oriented, focused on a goal or goals external to the coalition, and requiring concerted member action.''*

Coalitions are forms of inter organizational relations (Whetten, 1981) and group of organization leading toward common goal (Aldrich & Marsden, 1988; Galaskiewicz, 1979; Grusky, 1992; Marsden, 1992), and exchange theory (Levine & White, 1961) and interestingly, studies on these items increased tremendously (Chavis, Speer, Resnick, & Zippay, 1993; Francisco, Paine, & Fawcett, 1993; Lasker, 1997; Mattessich & Monsey, 1992; Sink, 1987).

Coalitions are relationship building, correlated with two process skills mainly to set up a good relationship between leader and members and initiating the system for interaction and generate a formation that facilitated and promoted involvement (Mizrahi & Rosenthal, 2001) with active support by the leader. Kotter (1995) Mizrahi and Rosenthal (2001) indicated that skilled leadership was frequently identified as feature for the success of coalition. Even though coalitions have common characteristics with collaborations, the collaboration commonly refer to specific task, centred on synchronization and dispute settlement, obligatory in nature, have less team players, and are temporary (Green, 2010).

Scholars (Allen, Madison, Porter, Renwick, & Mayes, 1979; Fairholm, 1993) initiated and valued occurrence of coalitions as instrument of political influence in organizations and knowledgeable leader were responsive on building coalitions by few methods namely by convincing peers, subordinate, superior or stranger to work together in achieving the desired goal (Bolman & Deal, 1991; DeLuca, 1999). The implication of coalition on leaders is that they must create awareness among member on their common interest and organize their interactions and related activities (Ammetera, Douglasb, Gardner, Hochwarterb, & Ferrisb, 2002). Guiding collations with successful communication and removal obstacles are factors that empower other to make action (Kotter, 1995).

2.2 Innovation

The definition of innovation differs from many studies (Chen & Chen, 2007; Wolfe, 1994). Subramaniam and Youndt (2005) and Van de Ven (1986) indicated that innovation is about discover and make an effort to create new products, services or work practices. Many authors (Afuah, 2003; Bantel & Jackson, 1998; Damanpour, 1996; Kimberly, 1981; O'Sullivan, 2000; Ordaz, Lara, & Cabrera, 2005; Roberts,

1988; Tushman & Nadler, 1986; Yen & Chang, 2005) defined innovation as the implementation and adoption of a new idea by organization, modify them into practical products or procedures (Robbins, 2005) or work practices (Ichniowski C, Shaw K, & G., 1997 ; Subramaniam & Youndt, 2005) or proposing an important changes in markets or society by initiating something valuable (Mang, 2000) or attainment, distribution and, use of existing or new knowledge (Damanpour, 1991; Moorman & Miner, 1998).

In a similar vein, innovation can be defined in terms of three aspects (Ordaz et al., 2005): a new product to a business unit (Damanpour, 1996; Tushman & Nadler, 1986); a new process (O'Sullivan, 2000; Schroeder et al., 1989; Zmud, 1982); or an attribute of organization (Bantel & Jackson, 1998; Kimberly, 1981).

Historically, numerous research on innovation in organizations had focuses on number of substances such as on determinant factors (Germain, 1996 ; Kimberly & Evanisko, 1981; Nystrom, Ramamurthy, & Wilson, 2002), consequences (Rogers, 1995; Subramanian & Nilakanta, 1996), strategy (Hitt, Hoskisson, Johnson, & Moesel, 1996; Parnell, Lester, & Menefee, 2000), structure (Burns & Stalker, 1961; Damanpour, 1998, 1991; Pierce & Delbecq, 1977), climate (Amabile & Gryskiewicz, 1989; Isaksen, Laver, Ekvall, & Britz, 2001), distribution of practice (Abrahamson, 1991; Rodgers & Adhikurya, 1979), team communications (King & Anderson, 1990; Mumford, Feldman, Hein, & Nago, 2001) and individual performance capabilities (Mumford, Marks, Connelly, Zaccaro, & Johnson, 1998; Runco & Sakamoto, 1999).

This study however defined innovation as a process that not only provides new and tangible products but also provides intangible new ideas. Among innovation dimensions that was used in the study are: number of new ideas, number of new products, product design and time development, new market and new customers, innovative culture, rate of innovative taught, number of patent, number of copyright and etc. (Chen & Chen, 2007). Since organization is best place for implementation of innovation, innovation cannot be studied independently from organization that generates or adopts it (Kimberly, 1986).

2.3 University And Innovation

Malaysia has declared their intentions to prepare this country as regional hub of education (Mok, 2010). This is envisaged in the National Higher Education Strategic Plan 2020, when government outlines seven major reform objectives, namely widening access and enhancing quality; improving the quality of teaching and learning; enhancing research and innovation; strengthening HEIs; intensifying internationalization; enculturation of lifelong learning; and finally, reinforcing the Ministry of Higher Education's (MOHE) delivery system (Sirat, 2009).

To guarantee a comprehensive improvement, the Malaysian Government is constantly plan and implements programs and activities focused on knowledge, creativity and innovation. This is evident from the 2013 Budget, where the Ministry of Science Technology and Innovation with the collaboration of Agensi Inovasi Malaysia and non-governmental organisations (NGOs) will undertake initiatives in achieving government inspirations (Razak, 2013).

In a pursuit of becoming a fully develop nation, Malaysia has transformed to the knowledge-based economy which attributed to the increasing importance of intellectual capital as it main resource (Moon & Kym, 2006; Sonnier, Carson, & Carson, 2007; Tan, Plowman, & Hancock, 2007). Intellectual capital is important in the new economy for two reasons: first, universities' main contribution and output are subtle, and the outcome on the universities' business progression is quite small (Canibano & Sanchez, 2004); secondly, universities are supposed to be more transparent and to equip their stakeholders namely students, public

authorities that fund universities, labour markets, etc. with sufficient information (European & Commission, 2003).

This transformation start off with private organizations and expanding publicly which to include universities (Sanchez & Elena, 2006). Since the demand to universities is high, it is encouraged to increase level of quality in education and research (Wua, Chen, & Chen, 2010) and even interact with a variety of other knowledge producers (Gibbons, 1998).

In supporting the national innovation systems, it is very crucial to train professionals, high-level specialists, scientists, and researchers in generating new knowledge (Bank, 2002). University is supposed to produce well-qualified graduates which is highly demanded by market; produce reputable research issued in top scientific journals; and contribute to technical innovations through patents and licenses (Liu, Wang, & Cheng, 2011). It is highly believed that universities are essential to the growth of economic since research influence innovation, and good universities can attract future talent, build strong nation, and coordinate the country with the global knowledge economy (Salmi, 2009) hence, contemporary universities can geared innovation and economic development and eradicate social and environmental problems (Marginson, 2011).

3. Methodology

This study applied a quantitative research design and employed a cross sectional methodology. The respondents in this study were managers from various faculties and departments of selected public HEIs in Klang Valley. Approximately 500 questionnaires were distributed to managers who are involved directly in decision making at tactical and strategic planning level. A survey instrument consisted of three main sections: Section A was on leaders' attributes, Section B on innovation, and Section C was on the respondents' profile. It was designed using a Likert scale from "1- *Strongly disagrees*" to "5 - *Strongly agree*". The dimensions of leaders attributes were adopted from The Leadership Competency Model that consist of five dimensions: leading change, leading people, business acumen, results driven and building coalitions (Eyde et al., 1999). While an innovation dimensions comprise number of new ideas, number of new products, product design and time development, new market and new customers, innovative culture, rate of innovative taught, number of patent and number of copyright (Chen & Chen, 2007). All dimensions and items were checked on the reliability and validity criterion and all met the validity and reliability requirements. A correlation and regression analysis was used in data interpretation.

4. Results

Demographic profile

Table 2 presents respondents profile for the study. The response rate was 49% where 224 out of 500 completed questionnaires were received for this study. The portion of male and female respondents is equal. Majority of them are in the age category of 41-50 years old (46.3%). Most of the respondents (57%) participating in this survey were Head of unit or supervisors and 66% of them is holding DBA or PhD qualification. One third of the respondents (33.2%) have 11-15 years' work experience and almost half of them have worked between 1-5 years in the present position.

Table 2: Respondents profile

Characteristics	Categories	Frequency (%)
Gender	Male	122 (50.0)
	Female	122 (50.0)
Age	20-30 year	26 (10.7)
	31-40 year	76 (31.1)
	41-50 year	113 (46.3)
	above 50 year	29 (11.9)
Position	Vice Chancellor	1 (0.4)
	Deputy Vice Chancellor	1 (0.4)
	Dean/Deputy Dean	22 (9.0)
	Director	11 (4.5)
	Head of Department	69 (28.3)
	Others	140 (57.4)
Have worked for Education level	DBA/PhD	162 (66.4)
	Master	71 (29.5)
	Professional body	6 (2.5)
	Others	4 (1.6)
Years of services	1-5 years	48 (19.7)
	6-10 years	72 (29.5)
	11-15 years	81 (33.2)
	16-20 years	43 (17.6)
No. of years' service in present position	1-5 years	120 (49.2)
	6-10 years	76 (31.1)
	11-15 years	45 (18.4)
	16-20 years	3 (1.2)

Reliability analysis

Table 3 presents the Cronbach alpha coefficient for each variable. The reliability of the data was verified using Cronbach alpha, where the closer the Cronbach alpha is to 1, the higher the internal consistency reliability (Sekaran, 2000). The alpha coefficients for this study are all above 0.70 and were concluded as being reliable (Hair et al., 2006b; Nunnally, 1978).

Table 3: Overall internal reliability

Dimensions	Cronbach's alpha	No. of item
Leading Change	0.940	18
Leading People	0.948	14
Results Driven	0.957	23
Business Acumen	0.953	22
Building Coalitions/Communication	0.961	21
Innovation	0.848	17

Descriptive statistics and coefficient correlations among variables

Table 4 presents means and coefficient correlation among variables in the study. Mean value for leading change is the highest compared to the other leader's attributes. Respondents perceived that leaders at public HEIs need to possess leading change attributes followed with building coalitions/communication, leading people, results driven and business acumen. Business acumen attributes is the least importance attributes that should be possessed by top leaders at public HEIs. As shown in Table 3 also, the findings indicate that all leadership attributes are significantly correlated with innovation, where the correlation coefficients value are between $r = 0.370$ and $r = 0.485$; at $p < 0.01$. The highest correlated attribute are leading change attribute while the lowest r-value is result driven attribute.

Table 4: Mean values and correlations coefficients among variables

	Mean	1	2	3	4	5	6
Leading Change	4.184	1					
Leading People	4.165	.796**	1				
Results Driven	4.134	.738**	.733**	1			
Business Acumen	4.128	.710**	.722**	.781**	1		
Building Coalitions/Communication	4.167	.787**	.810**	.680**	.659**	1	
Innovation	4.143	.485**	.465**	.370**	.472**	.458**	1

** Correlation is significant at the 0.01 level (2-tailed)

5. Discussion and Conclusions

The above analysis is use to answer research objectives of the study. Mean value shows the importance of leader's attributes among leaders at public HEIs. All mean values are above average indicating that leaders at public HEIs need to possess all these attributes. The most importance attribute that should be possessed by leaders at public HEIs is leading change while the least importance attribute is business acumen. Leaders at public HEIs need to be flexible and lead changes towards academic excellence in order to be at par with top rank HEIs. Business acumen attribute is perceived as the least important attribute to leaders at public HEIs mainly because they are public university funded by government. Based on the correlation analysis, results show a significant relationship between leadership attributes and innovation that support many of the previous studies that have established the relationship between leadership attributes and innovation (Conner, 2000; Mizrahi & Rosenthal, 2001; Mumford et al., 2003; O'Toole, 1995; Rezak, 2012).

As the need to transform Malaysia HEIs, the question of strengthening the role of HEIs leaders becomes important. This study contributes to this issue by emphasizing several important aspects. First, results highlight the importance of leaders to lead the changes as one of the factors closely related to innovation. Leading change attributes of leaders investigated in the study is significantly related and asserted the most difficult leadership challenges faced by the leader in enhancing and encouraging the spirit of innovation in HEIs. Second, a similar pattern of findings is discover, concerning the relationship between leader's business acumen attribute and innovation. Results also highlight the importance of leaders to outfit with business acumen attributes that intimately related to innovation. Interestingly, this study place an interest to the need of the leaders to build coalitions within the institution specifically by convincing peers, subordinate or superior to work together, ultimately enhancing organizational innovativeness. Finally, leading people require leader to possess technical, financial, or operational skills that support innovativeness. In other

word, leaders need to invent constitution that will contribute to creative activities in order to prosper the institutions. In conclusion, the study showed how leadership attributes provides valuable insights into the challenges faced by leaders in implementing change especially in enhancing innovativeness within HEIs.

6. Direction For Future Research

The present study focuses on leaders attributes in public HEIs and demonstrates its relations with innovation. Thus, its opens a number of avenues for related research. More research is needed to assess the robustness of other variables that affect innovation and explore further dynamics leaders attributes in HEIs. Others variables that stated in leadership competency model (Eyde et al., 1999) might contribute to a more significant results. The data for this study was gathered through self-report, i.e. by asking each respondent (leader) to describe his or her own perception toward dimensions being research. An alternative, and arguably better but more difficult, approach is to ask each leader or manager's peer and subordinates towards all the dimensions that might produce difference results. A comparison study of leaders' attributes at public and private HEIs shall also be conducted.

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Co-producing knowledge: Academics and non-academics partner to build synergistic teams to produce sustainable pathways to advance the emerging field of bamboo farming, manufacturing and processing in Alabama

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Abstract

Black Belt Bamboost project was developed to advance knowledge of bamboo as a catalyst for a new type of agricultural development, identify associated potential end markets, as well as its processing, manufacturing, and general awareness within the state of Alabama, specifically the Black Belt region. It exists to provide a launch pad for leaders in multidisciplinary research collaboration, education, and the community to partner in order to build synergistic teams to develop discoveries that will position Alabama to be a leader in the emerging field of bamboo farming, manufacturing and processing. It also serves as a platform for individuals engaged in creative pursuits using bamboo. This paper examines the development of this interdisciplinary community engagement project. With the belief that a co-production of knowledge is essential for developing more sustainable pathways, an agorist strategy was used to bring non-academic and academic communities along with public, private and governmental institutions together.

Keywords: co-production of knowledge, sustainability research, bamboo, bamboo in Alabama

"1. Introduction"

Bamboo is a grass, not a tree, and is considered a non-wood forest product. Bamboo grows in tropical and subtropical regions and there are approximately 1250 species in 69 genera. [3] It has often been referred to as the 'poor man's timber' but in the last decade this opinion has begun to change as new uses for bamboo have emerged especially as a substitute for wood. [12]

Today bamboo can be found in flooring, textiles, paper, structural support systems, and as a sound reduction material in automobiles. There is a growing interest in bamboo and many countries have begun to implement studies, institute funding opportunities for plantation owners, growers and processors as it is increasingly proving to be an important economic asset. It is often termed "Green Gold," for its forecasted return on investments. [22]

The International Network for Bamboo and Rattan (INBAR) is an intergovernmental organization dedicated to improving the social, economic, and environmental benefits of bamboo and rattan. [9] "At the end of August 2012, 38 countries had acceded to its Establishment Agreement" which includes accepting its mission and purposes. Its mission "is to improve the well-being of producers and users of bamboo and rattan, while maintaining a sustainable resource base by supporting innovative research and development. INBAR reports that China is the largest exporter of bamboo while the United States is the largest importer of bamboo and

bamboo related products. The global bamboo market is currently at $7 billion annually but is predicted to reach $17 billion by 2017. [21]

In June 2012, at the Rio+20 United Nations Conference on Sustainable Development, held in Rio de Janeiro, Brazil, Kimberly-Clark Corporation, "One of the world's largest makers of personal paper products, the company operates through four business segments: personal care, consumer tissue, K-C Professional, and health care" [8], announced it would cut its reliance on timber and source 50 percent of its fiber from alternative, environmental friendly sources by 2025. [13] The company has been researching and testing the viability of using alternative fibers including bamboo in the production of its products. In particular it is considering the environmental implications of these alternative plants in respect to scale of land use, impacts on biodiversity and biogenic carbon accounting. In their initial study, which was limited in scope, results indicated that bamboo has less impact on the land than softwood trees because it regenerates in three years as opposed to 30-50 years for trees. [19]

"1.1 Bamboo Farming in the United States"

Until recently the possibility of farming bamboo in the United States as a crop was not possible because there has never been an economical supply of juvenile plants to establish large groves of bamboo. A sustainable bamboo industry is now possible due to advances in tissue culture research, specifically with the largest temperate bamboo species Moso, coupled with other types of propagation techniques.

Experiments with bamboo were conducted at Auburn University in Alabama in 1933, when the first introductions were made from several nurseries in the United States, particularly the U.S. Plant Introduction Station at Savannah, Georgia. Researchers at Auburn University and the Experiment Station in Camden, Alabama began tests comparing bamboo to Loblolly pine production in the 1930s, and continued through the 1960s to determine if bamboo could be a renewable alternative crop for pine trees. The research was sponsored by a USDA grant and the next step in the research was to build a processing plant to test and stimulate interest in growing bamboo. [18]

Large scale experiments at Camden began in 1959, when approximately four acres of timber bamboo were planted in order to compare yields of bamboo and pine for pulp production. In 1960, approximately 100 acres of five species were planted to study the problems of production, harvesting and utilization of bamboo. These experiments were initiated with the active cooperation of the New Crops Research Branch of the United States Department of Agriculture. The discontinuation of cooperation by the Department on July 1, 1965, reportedly as an economy measure, resulted in drastic curtailment of planned harvesting research and abandonment of plans for utilization research. It is believed that political or economic pressures at the time ended the funding for the research even though it showed very positive and encouraging results. Results revealed that the bamboo species Phyllostachys bambusoides out performed Loblolly pine in terms of dry wood tonnage per acre. [18]

There are still bamboo groves in Camden but are not being used for testing or research, and the viability of some of the species is questionable. When comparing a pine plantation and a grove of bamboo, pines are typically thinned every 10-15 years while bamboo can be harvested on a yearly basis after the initial establishment period of 3-5 years. Bamboo does not have to be replanted while removed pines from the

plantation have to be replanted. Much of the bamboo is still growing at the station today and includes 17 different species. [18]

In spring 2010, a conversation began in the state of Alabama regarding the possibility of growing bamboo as a new agro-forestry crop with farmers, citizens, members of community groups, and public, private and governmental institutions. The intent was to begin a dialogue that could encourage and lead to the development of a strategic framework for exploring the possibilities of creating a bamboo agricultural and industrial complex in Alabama. The conversation was sparked by the scientific breakthrough made by researchers at Booshoot Gardens, Inc. who had discovered how to rapidly propagate bamboo through tissue culture processes. This allowed, for the first time, the possibility of large scale plantings of bamboo, in particular the Moso species.

The Black Belt region of the United States is one of the few places where this timber bamboo species will grow to a mature size. There are 18 counties in Alabama that are included in this region which stretches across the state from the Mississippi to Georgia state lines. Moso is used for food, fiber, paper, plywood, furniture, flooring, and a variety of architectural structural materials. This region in the state of Alabama was once sought after for its rich soil and was known as the Cotton Belt during the 18th century to the early 20th century. However since 1915, when the boll weevil devastated the cotton crops, this area never recovered and has remained economically depressed, with extremely high unemployment rates, poor social services and a dire socioeconomic situation.

In June 2010, farmers were invited to attend a presentation and take part in an open discussion forum held on the campus of the University of West Alabama. Listening to and witnessing the farmers realize they were being asked to be part of a process of discovery from the beginning, that their knowledge and expertise could help define the system, proved to be an important realization and provided the key to building a framework for how to begin the process of potentially introducing bamboo to Alabama as an agroforestry crop.

Also during spring 2010, Friends of Historic Northport, Inc. (FHN), a nonprofit located in Northport, Alabama, was gifted 200 acres of land along the Black Warrior River on which to develop the Van de Graaff Arboretum and Historic Bridge Park. With the establishment of this public park, FHN was able to further its mission by preserving a part of the natural environment of this riverfront community that has played an essential role in its history.

Ironically, prior to being named Northport in 1871, this area of Alabama was known as “Canetuck” because it was a dense cane break wilderness. Over the years Canetuck was translated to Kentuck, and then the town was officially named Northport for its location along the Black Warrior River. [11] Northport, like many other southern towns located along a major river, prospered from the growing, ginning, warehousing and shipping of cotton. Unfortunately the “boom days” of growing cotton in the south are long gone, however, the rich, black, fertile soil remains.

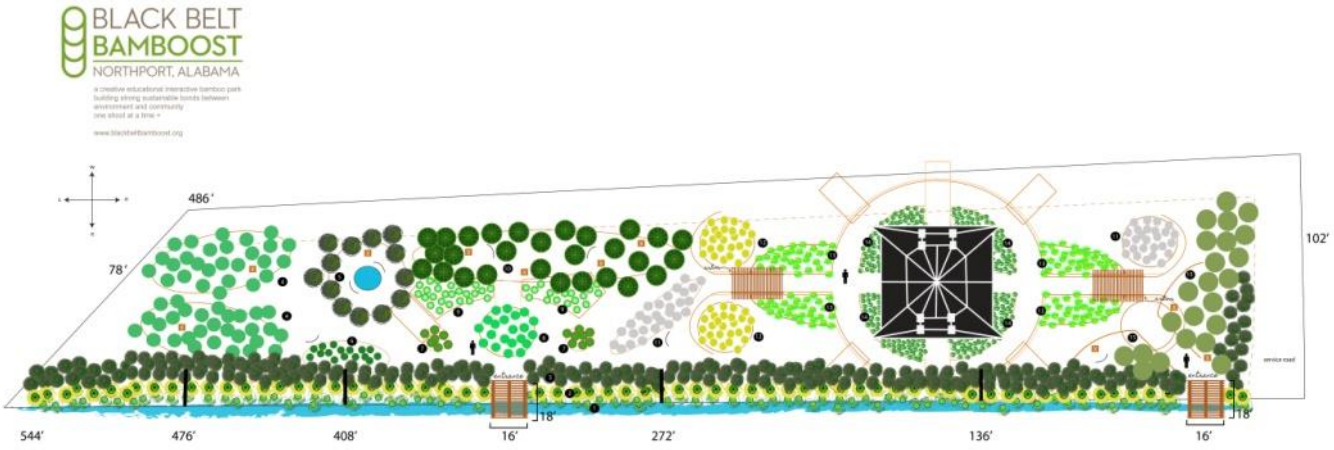
The accessioning of this land, coupled with the historical significance of bamboo in the area, provided the catalyst to combine two seemingly disparate occurrences, and proved to be the linchpin for taking the idea of bamboo, as a new agroforestry crop in Alabama, into a tangible process and project.

This paper discusses the development of the Black Belt Bamboost project and how this publically-driven, interdisciplinary community engagement project is bringing non-academic and academic communities

together along with public, private and governmental institutions to form partnerships in order to pursue bamboo education, research and outreach opportunities.

"2. Creating an Engaging Space/Place"

It became apparent early in the dialog process that there needed to be a public place or space for academic and non-academic individuals to gather, explore and learn about bamboo and the diverse possibilities associated with it as an agroforestry crop. This lead to the idea of creating a public bamboo park (Figure 1) as a launch pad for bamboo education in order to further inquiry and research, and pave the way for establishing a sustainable bamboo industry in the Black Belt region of Alabama. The park could also be a place that showcased the full value cycle of bamboo and become a livability showcase in the community.



"Figure 1. Site plan for the bamboo park"

The FHN Board of Directors were approached regarding the possibility of using some of the land it had been gifted for the bamboo park, in particular part of the 27 acres located on the south side of 5th Street adjacent to Kentuck Park. The board agreed to the allocation of five acres for the project. In addition to the public bamboo park, plans to incorporate a one acre test plot of bamboo for farmers, and a bamboo build center began to develop. The next step in the process was to engage young people within the community to help drive this idea forward.

"3. Recruiting the Community Leaders"

The process of developing a bamboo agricultural and industrial complex within the state of Alabama is multifaceted and a long-term proposal which could be perceived as overwhelming and daunting. The concept of building a public bamboo park however is simple to comprehend and a tangible goal that is obtainable in a relatively short-term timeframe. The plan for the bamboo park included planting 15 different species of bamboo, a pavilion, water feature, and space for public art installations. It was believed that once this part of the project was started, it would be easier for others to join, as the idea would be visible and not in its present abstract format.

It was important to reach out to individuals within the community who could come together and form a group with both social and task cohesion. The "spreading of great ideas" is the mantra of TED (Technology,

Entertainment, Design), and its mission is, "We believe passionately in the power of ideas to change attitudes, lives and ultimately, the world. So we're building here a clearinghouse that offers free knowledge and inspiration from the world's most inspired thinkers, and also a community of curious souls to engage with ideas and each other." [16] The belief of this organization is that "there is no greater force for changing the world than a powerful idea, and offers the following insights about an idea:

"Table 1. The power of an idea"

1.	An idea can be created out of nothing except an inspired imagination.
2.	An idea weights nothing.
3.	It can be transferred across the world at the speed of light from virtually zero.
4.	And yet an idea, when received by a prepared mind, can have extraordinary impact.
5.	It can reshape that mind's view of the world.
6.	It can dramatically alter the behavior of the mind's owner.
7.	It can cause the mind to pass on the idea to others.

Individuals selected for participation needed to have the ability to grasp the powerful nature of this idea of bamboo as an agroforestry crop in Alabama, how it could be a game changer for the state, and be able and willing to use their skills and talents to bring it to fruition. Thus, the group dynamics, its cohesion, over both the short and long term, would ultimately determine the success of this project.

"4. Developing the Group"

Carron [4] defined social cohesion as how well the members of the group like each other and how well they work together. Task cohesion reflects the degree to which the members of the group work together in order to achieved their goals. According to Townsend [17], the following factors affect cohesion:

"Table 2. Factors that affect cohesion"

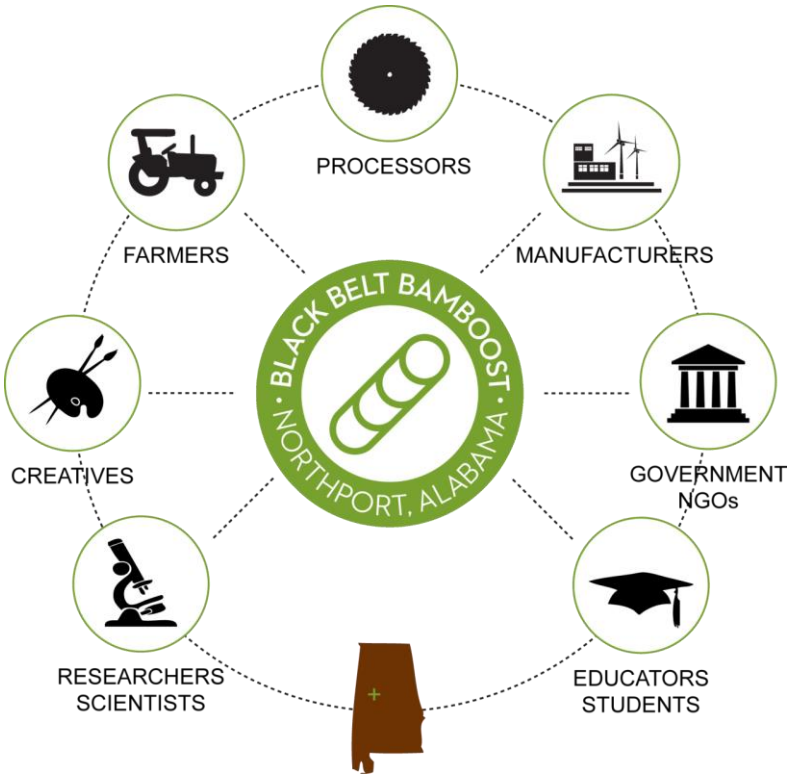
1.	Stability	Cohesion develops the longer a group is together with the same members
2.	Similarity	Cohesion develops when the more similar the group members are in terms of age, sex, skills and attitudes
3.	Size	Cohesion develops more quickly in small groups
4.	Support	Cohesive teams tend to have managers and coaches who provide support to team members and encourage them to support one another
5.	Satisfaction	Cohesion is associated with the extent to which team members are pleased with each other's performance, behavior and conformity to the norms of the team

Invitations were sent to 20 individuals to attend an exploratory meeting on 6 November 2010, and 14 accepted the challenge. Prior to the meeting, on October 27, 2010, a request was sent to 25 graphic designers around the world asking them to take 36 hours to develop a visual reaction to the word bamboo. Eighteen designers, representing eight states and five countries, participated. Their designs were the cover art for informational books distributed at the first meeting. Included in each book was a card printed with instructions to check the box next to the sentiment, "I left my ego at the door," or "Oops, I forgot." The Black Belt Bamboost project was officially launched on 6 November 2010 in order to: " boost our community through bamboo awareness

and positively affect its economy, education, and creativity by building strong sustainable bonds between environment and community through strategic educational endeavours and creative activities one bamboo shoot at a time."

"5. Building the Project Framework"

If this project was to progress, a framework needed to be constructed to support its vision and strategies, and be flexible and dynamic in order to adapt to community participation and feedback. Establishing sustainable social cohesion, task interaction, shared responsibility, and recognizing, as shown in Figure 2, that all community sectors and leadership would need to act collectively, were determined to be key factors for creating and achieving project goals. After that initial meeting with farmers it was apparent too that education needed to be the keystone in the developmental framework.



"Figure 2. The project framework: Partnership and connectivity"

Farmers as a group are essential to this endeavor, and Riggenbach [14] states that farmers were traditionally their own stewards of knowledge but that stewardship has been undermined by modern day capitalism. And, "since knowledge is power, and its origin has changed, many farmers find themselves in a top-down approach to knowledge, where they are at the bottom end." The researcher suggested three examples of methodologies for bottom-up research:

"Table 3. Methodologies for bottom-up research"

1.	Farmer-To-Farmer Exchanges	Facilitating the flow of information between farmers.
2.	Participatory Agricultural Research	When scientists work together with farmers.

3. Peer-to-peer Collaboration:	Create an open source environment where farmers can exchange their innovations and build on others.

Street Science [7], is an approach to research this is described as a "process that emphasizes the need to open up both problem framing and subsequent methods of inquiry to local knowledge and community participation." Local knowledge being defined as "the scripts, images, narratives, and understandings we use to make sense of the world in which we live." Through the framework of 'street science,' farmers, community members and researchers could combine forces within this project.

Knowledge is produced through a co-production framework, a process in which scholars seek a connection with rather than dominance over their subjects/objects of interest. Corburn, [7] states that "Street Science ought to be conceptualized as a process that encompasses many of the key principles of the broad set of participatory research methods increasingly called participatory-action research and community-based research. However, Street Science differs from these techniques by not taking as a priori truths the meanings and definitions of issues framed by professionals."

Co-production of knowledge between academic and non-academic communities is a prerequisite for research aiming at more sustainable development paths. Sustainability researchers face three challenges in such co-production: (a) addressing power relations; (b) interrelating different perspectives on the issues at stake; and (c) promoting a previously negotiated orientation towards sustainable development. The first of these three challenges, power, can be seen in Table 4. [15]

"Table 4. Challenges of knowledge co-production to be addressed by sustainability researchers"

Challenges	**Concrete meaning in the four case studies**	**Implications for researchers (based on theory and practice)**
Power	Addressing power relationships between different actors	Need to advocate the co-existence of thought and thought styles and make these explicit
Integration	Ensuring that a common understanding emerges	Need to advocate the co-existence of thought collectives and thought styles and make these explicit
Sustainability	Ensuring that knowledge co-production serves the purposes of 'sustainable development'	Need to promote the orientation towards sustainable development throughout the process of knowledge coproduction

And, in Table 5, the researchers [15] provide summarizes for each of the three challenges of their study.

"Table 5.Three basic roles through which sustainability researchers met the challenges of knowledge co-production (power, integration and sustainability) research"

Role	**Expectations**	**Norms**
Reflective scientist	Capable of providing expertise based on scientific knowledge validated according to the norms of the natural or social sciences between different actors	Validate knowledge according to quantitative and qualitative procedures
Intermediary	Able to make different thought styles visible	Provide leadership in view of representing

	and to link them around common interests	common interests
Facilitator	Capable of enhancing communicative processes between thought collectives, based on respect, openness and deliberation	Promote joint reflection oriented towards a common understanding of situations and collective action, as part of a learning process

Prior to development, it was necessary to recognize that participants navigating within a co-production of knowledge framework, in any capacity, would be challenged throughout the process by the concept of power, as perceived or attributed characteristic of another, and the role it could play in determining the success or failure of a project. The Community Knowledge Project [6] is "an experimental practice of knowledge making that seeks a transformative connection between the people and outcomes of research-action and health programming." The partners in this project established the following values to guide their work:

1. True implementation of community-based participatory action research methods requires community-design, not just community participation.

2. Participation in our model begins with the premise that the community is already powerful. It already has activists and agents of change. It lacks the creative space/tension for productive conflict.

The partners believed that:

> A knowledge project is the catalyst for community. It involves gathering information, formally and informally in order to define the reasons for coming together, the kinds of meaningful action that are necessary, and the imagined results of the activities. Research-action conveys an orientation toward knowledge making that requires continual investment in community.
>
> Because outcomes are never guaranteed, and because participants hold different positions within stratified social orders, each moment in a knowledge project must catalyze connections that always entail mutual benefits and investments (risks). To ensure connections between pasts, presents and futures of all participants in a knowledge project, only those actions that result in improved connections, understandings and mutual benefits for all should occur. A test of any knowledge project that embodies the research-action principles of a community knowledge project is that if a project ends, people should feel loss, not relief. [5]

Instead of stabilizing the social identities that shape the boundaries between academic and non-academic communities, sustainability research aims to produce an agora (Figure 3) in which the boundaries are provisionally blurred; the resulting ‘messiness’ of ‘divided identities’ is the necessary condition for engaging with ‘others’ and ultimately helping to reshape the involved groups’ ‘perceptions, behavior and agendas that occur as a function of their interaction’. [10]

"Figure 3. Agora. The intersection of academic and non-academic knowledge; a gathering place"

The Black Belt Bamboost project framework was constructed by valuing 'street science' and the important role it can play in extending and refining scientific inquiry, and building sustainable bridges between science and practice to create an agora.

"6. Discussion"

The purpose of this paper was to present the development of the Black Belt Bamboost project, a community-based project designed to raise awareness about bamboo and how the diversity of this plant, and its associated applications, are providing a vast array of engagement opportunities to educate and connect people. This plant could be a catalyst for a new type of agricultural development in Alabama, specifically the Black Belt region of the state, where opportunities are few, and many of the counties consistently rank as some of the poorest in our nation. Through this project, education, research and outreach activities will showcase how bamboo can change the lives of many, not just a few, improve our environment, and become an economic and creative benefit in our community, state, and nation as a whole.

The project, an agora, based on the concept that a co-production of knowledge between academic and non-academic communities is essential for developing more sustainable pathways, is comprised of interdisciplinary partnerships in order to pursue research and education on multi-dimensional platforms for developing new industries, and the integration of social-economic-environmental technical approaches to assist in establishing Alabama as the epicenter for the bamboo industry with the United States. Outreach and educational activities and experiences are extended to the citizens of the state and beyond.

It offers opportunities for education and enrichment for students including those in K-12 STEM programs, 4H programs and undergraduate and graduate students in the fields of science, engineering, human sciences, and art and design. Through public events such as lectures, art exhibits, workshops and presentations to associated groups and organizations, this project engages the wider community with bamboo in new and unexpected ways.

The information in Table 6 illustrates the number of individuals, institutions and organizations that have partnered with this project since it began in late 2010.

"Table 6. Black belt bamboost project partners and collaborators since fall 2010"

Academics/Researchers	32
Non-academics	118
Government Agencies	2
For-Profits Partners	8
Non-Profits Partners	1
Higher Education Partners	7
Graduate Student Research Projects	5
Undergraduate Research Projects	3
K-12 Students	425
Elementary & Middle Schools	2

In October 2011, the project members were contacted by the Federal Emergency Management Agency's Long-Term Community Recovery Team, who were in the area to develop a plan for the state after a devastating tornado ripped through the community on 27 April 2011. As a result of that meeting, the idea of how bamboo could be a game changer for the state, and become a part of Alabama's future, was articulated in *Accelerate Alabama*, the economic development strategic plan for the state, developed by the Alabama Economic Development Alliance by Executive Order of Governor Robert Bentley. [2] The information was also included in two additional reports: Tornado Recovery Action Council's *Cultivating A State Of Readiness: Our Response To April 27* [20] and *Geiger, Alabama 2011, Long Term Community Plan*. [1]

The public bamboo park has been developed on one of the five acres of land designated for this project. The land is centrally located and highly visible, situated at one of the major gateways into the Black Belt region, and within a few miles of three institutions of higher education: The University of Alabama, Stillman College, and Shelton State Community College. In addition, it is adjacent to Kentuck Park, where the nationally recognized Kentuck Festival of the Arts is held each year, and at the end of the Northport Levee Walking/Biking Trail.

Individuals have begun to have the opportunity to learn about and explore all of the varied and wonderful aspects of bamboo through a diverse array of artistic, cultural, educational and recreational opportunities. There are fifteen different species of bamboo planted in the park. During the spring/summer of 2014, bamboo plants will be transplanted from the groves in Camden, Alabama, which were part of the historic planting in the 1950s, to the bamboo park in Northport, Alabama. In the fall of 2012, an MFA graduate student from The University of Alabama used bamboo as her medium for sculpting large scale outdoor art pieces for her graduate showcase, *Signs of Life*. These sculptures were constructed on site at the bamboo park and on exhibit to the public for one year. In the summer of 2014, another MFA graduate student will exhibit her showcase in the bamboo park. The bamboo park can become a destination, offering a place of serenity, beauty and culture, drawing residents and visitors from the local, regional, and international communities, and will help this community thrive.

In the near future, farmers will have the opportunity to learn about and explore best practices for farming through the use of a one acre planting of Moso, the timber bamboo at the park. Academic researchers will also be able to utilize this test planting for specific studies. In addition, plans include an organic garden which

would allow farmers to see how to intercrop with bamboo, use the fodder from bamboo to make fertilizer, feed for catfish and chickens, and use canes for hoop houses and other garden structures.

A bamboo build center will be constructed in a later phase of this project. Bamboo is a renewable material with a simple production process and is expected to be a sustainable alternative for more traditional materials like concrete, steel, and timber. Individuals will be able to attend workshops at the Bamboo Build Center focusing on how bamboo can be used in innovative and experimental ways that demonstrate its architectural possibilities. In addition, there will be rotating exhibitions featuring the potential for small scale value added bamboo processing and manufacturing.

During the last three and half years the Black Belt Bamboost project has been able to bring together farmers, educators, students, researchers, scientists, community members, government officials, and local business owners through a variety of endeavours and activities. It is a long term project, and through continued, committed participation by its partners, there exists the potential for real and measurable social, economic, and environmental benefits that ultimately could reinvigorate jobs and the economy in Alabama's Black Belt region.

It is believed the Black Belt Bamboost project will continue to:

1. Bring public attention to the possibilities of developing a bamboo industry in Alabama
2. Raise awareness of bamboo as a catalyst for agriculture development in the state
3. Showcase the full value cycle of bamboo and the possibilities for creating downstream industries
4. Provide an opportunity to explore an alternative energy source

And through the above, the Black Belt Bamboost project will develop into a Regional Bamboo Center in order to coordinated bamboo research and creative activities, provide contact and support for bamboo farmers and become recognized as a leader in building a positive bamboo culture in the southeast.

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ANALYSIS OF MODES OF ENTRY AND LEGAL STATUSES OF AFRICAN IMMIGRANTS IN THE UNITED STATES

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ABSTRACT

The paper discusses the diverse modes of entry and legal statuses of African immigrants in the United States. This is vital as it will have a bearing on the integration of the immigrants within the American society. Like all U.S. immigrant groups, most African immigrants are admitted through family reunification channels; however, African immigrants are much more likely than other groups to be admitted as refugees or through the diversity visa program which aims to increase flows from underrepresented countries by allowing immigration from those countries of individuals without a formal job offer or strong family ties in the U.S.A.

INTRODUCTION

According to Ettis (2001), African migration to North America dates back to the earliest days of European colonization. The first recorded passage of slaves from Africa to this region occurred in 1519, to Puerto Rico. Between 1519 and 1867 when slave trade ended, an estimated 10 Million African slaves were taken from Africa to the Western hemisphere, 360,000 landed in what is today the United States of America. Thus, forced African migration preceded the formation and independence of the United States. "With the ending of slavery and the slave trade in the late 1800s and subsequent severe restrictions on flows from Africa, there was very little immigration from Africa to the United States until the end of the 20th century(Thomas, 2011)".After decolonization, many Africans came to the United States seeking an education. Originally, these immigrants came with the sole purpose of advancing themselves before returning to their respective countries. However, in recent years there has been an increase in the number of African immigrants interested in gaining permanent residence in the United States. Additionally, the number of Africans migrating to the United States is steadily increasing. Among the factors which contribute to this out flow of people from Africa to the United States of America, lack of academic or professional recognition, political persecution/search for freedom make the main reason why African academicians and professionals have left their countries of birth. Education is probably the second most important reason while economic interests may hold the third place, the fourth and last is probably professional pursuits. In each one of these factors, there are sub factors which either strengthen or weaken them. For instance, there is an economic motive in professional pursuits and various economic activities. The manner in which Africans enter into the United States and the legal status they hold after their entry will have an influence on the kinds of jobs they do as well as services they receive including education and health care. Additionally their integration into the American society will be linked to their legal status.

The purpose of this paper therefore, is to examine the diverse modes of entry and legal statuses of African immigrants in the United States in comparison with other U.S immigrants overall. Three items will be discussed namely:

I. Citizenship and legal status of African immigrants in comparison with other immigrant groups.
II. The admission classes of African immigrants in comparison with other immigrant groups.
III. Analysis of geographic patterns associated with various admission classes.

Background

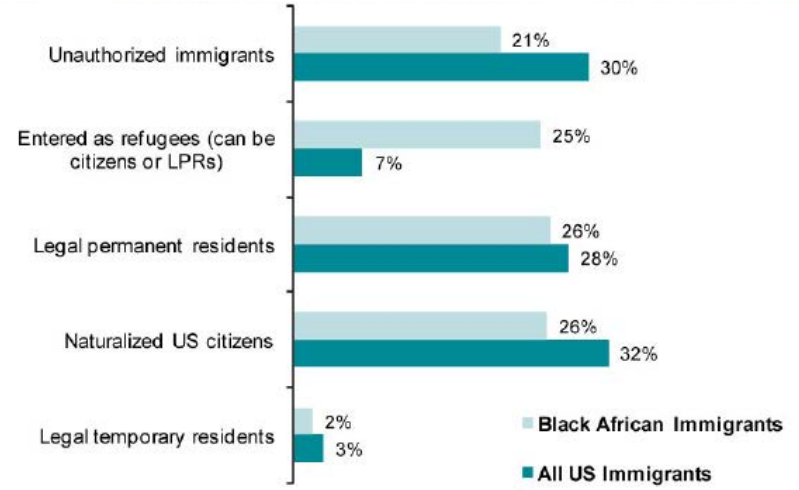
According to United States Census Bureau data collected using American Community Surveys (2009); African immigrants numbered about 1.5 million or 4% of the nation's total of 38 Million immigrants in 2009 and were far outnumbered by immigrants of Latin American, Asian, and European decent. Though currently small in number, African immigrants are among the fastest growing immigrant populations in the United States of America. The American Community Survey data farther reveals that the largest percentages of African immigrants hail from the Western Africa (37%), East Africa (28%) and North Africa (19%). These three Sub-regions have always topped the distribution, but the rankings have changed over time. The percentage of immigrants from Western Africa has remained relatively steady over the past three decades. Just under40% of all African immigrants were from West Africa in 1980, 1990, 2000 and 2007 .According to Terrozas (2009), the top countries of origin for African immigrants were Nigeria, Ethiopia, Egypt, Ghana, and Kenya. We now turn to the diverse modes of entry as well as the legal statuses of African immigrants once they arrive in the United State We will first examine the citizenship status of African immigrants after which we will discuss the legal admission classes.

Citizenship and legal status of African immigrants in the U.S.A

According to Capps, McCabe, and Fix (2011), 30% of all immigrants in the United States were unauthorized as of 2007: they had either entered the United States illegally (usually across the border with Mexico) or overstayed a valid visa. As shown on **Figure 1,** among African immigrants the estimated unauthorized share was somewhat lower (21%).African immigrants are much more likely than other immigrants to have entered the United States as refugees or gained asylum after coming to the country. "Since 1980 the United States has recognized the international definition of refugees as "fleeing persecution or a well founded fear of persecution (U.S. Office of Refugee Settlement)".Within the past three decades the instability within several African countries has led to the recognition of many immigrants from these regions as refugees- a designation allowing them to receive resettlement services and public benefits upon their arrival.

As indicated on **Figure 1,** in 2007, about 25% of African immigrants in the United States had entered as refugees or received asylum versus 7% of all U.S immigrants overall. Another quarter of African immigrants are Legal Permanent Residents (LPRs) who did not come as refugees. These immigrants entered the United States through one of three types of visa programs: family reunification, employment, or diversity.

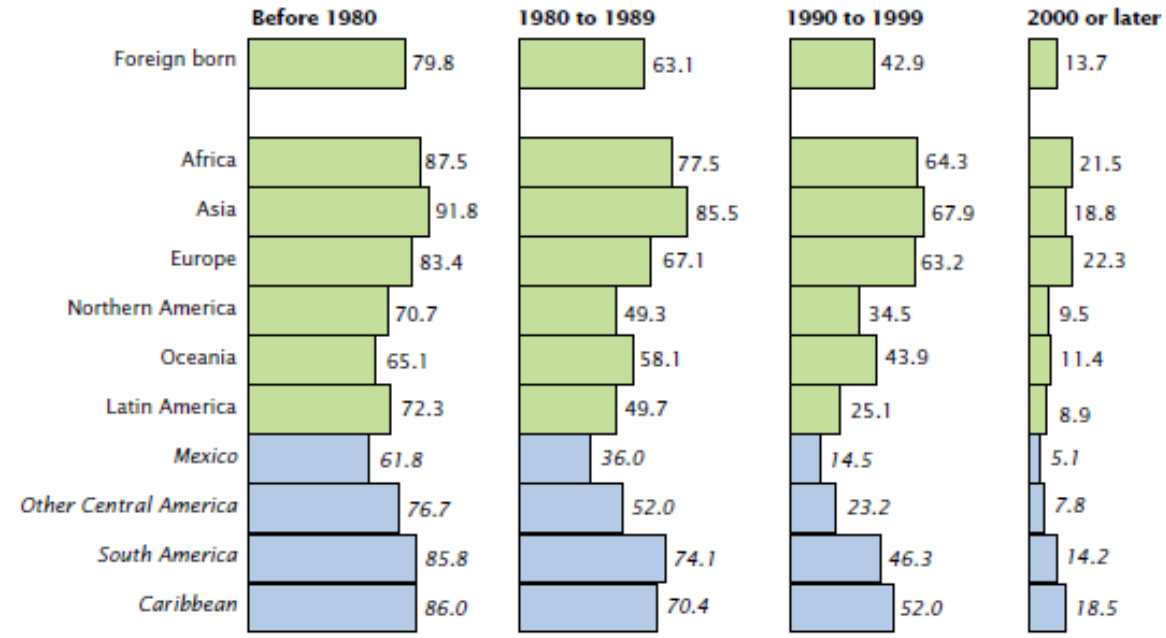
Figure 1. Citizenship and Legal Status of Black African Immigrants, United States, 2006-08



Source: MPI analysis of US Current Population Survey 2006-08 data pooled, augmented with assignments of legal status to noncitizens by Jeffrey S. Passel, Pew Hispanic Center.

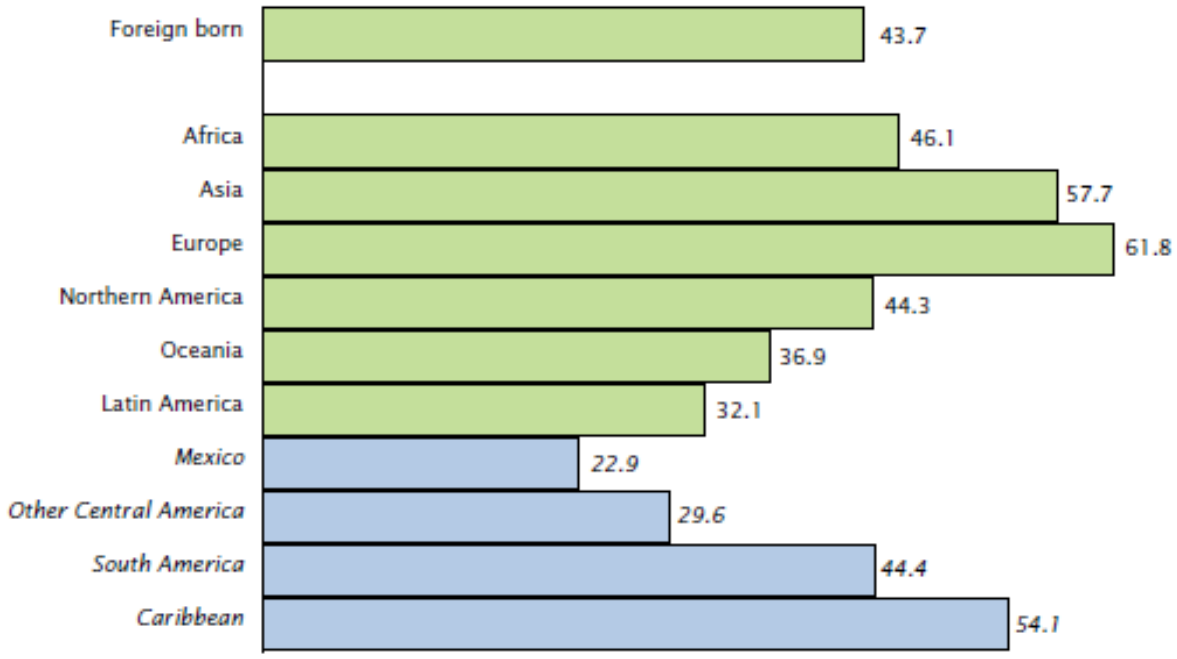
While many earlier African immigrants have become U.S. Citizens **(Figure 2) ,** the overall citizenship rate among African immigrants is low. Of all foreign born immigrants who arrived before 1980, 80% were U.S. citizens in 2010, 65% of the foreign born who arrived between 1980 and 1989 were naturalized citizens while 42.9% of those who arrived between 1990 and 1999 were naturalized citizens. Of the African immigrants who arrived before 1980, about 87.5 were naturalized, 77.5% of those who arrived between 1980 and 1989 were naturalized U.S citizens, 64.3% of those who came between 1990 and 1999 were naturalized. **Figure 3** shows that in 2009 naturalization rates for African immigrants (46%) and all U.S immigrants overall (44%) were comparable. The reason why the percentage for naturalized citizens is lower than for earlier arrivals is because there are very many immigrants who have come in the last few years and have not met the five year requirement as permanent residents before they can apply for Citizenship. About 60% of immigrants from Egypt were naturalized U.S citizens, making them the most likely of all African groups to naturalize. Immigrants from Algeria (56.1% and Morocco (52.8%) were also more likely to become naturalized U.S citizens than other African groups. Naturalization rates were comparatively lower for African born from Cameroon (24%), Senegal (26.2%), Zimbabwe (32.2%) and Kenya (33.3%)

Small shares of African immigrants have been admitted as temporary immigrants including students and those with temporary work permits." In 2007 about 2% of African immigrants held these types of temporary visas, close to the average of 3% of all immigrants (Capps, McCabe, and Fix, 2011)". Finally, there is a small group of African immigrants that are allowed to stay in the United States temporarily due to political conflicts or natural disasters in their home countries. The United States has designated two types of temporary legal Status-Temporary Protected Status (TPS) and Deferred Enforcement Departure (DED) on a country by country basis for short periods. TPS and DED allow immigrants to work in the United States and protect them from deportation.



Source: U.S. Census Bureau, American Community Survey, 2010.

Figure 2. Percent Naturalized by Period of Entry: 2010



Source: U.S. Census Bureau, American Community Survey, 2010.

Figure 3. Percent Naturalized: 2010

Legal Admissions by class for All U.S immigrants and African immigrants

As shown on **Table 1**, the annual flow of immigrants to the United States is about 1 million, with approximately 10% (100,000) coming from Africa. Family reunification is the most important mode of legal admission to the United States, including people who enter through marriage or who are sponsored to immigrate by their parents, siblings, or adult children .In Fiscal year 2010, two thirds of the approximately one million

immigrants legally admitted to the United States were admitted through family provisions (either as immediate relatives of U.S. citizens or through other family preferences).

As shown on **Figure 4**, 14% of all the immigrants who were legally admitted to the United States were in the category of employment (or as spouses or children of those admitted for employment (Capps, McCabe, and Fix, 2011)".Only 5% of the immigrants from Africa were admitted for employment, a proportion substantially lower than that of all U.S immigrants overall.

African immigrants are much more likely to have been admitted through the diversity program or as refugees than immigrants from other world regions. Table 1 reveals that in Fiscal year 2010 almost half of the African immigrants (46%) were in these two admission classes versus just 18% of all U.S immigrants. According to McCabe (2011), African nationals arriving in the United States as refugees between 2001 and 2010 accounted for 28.4% (149,755) of total refugee arrivals during this period. Refugee arrivals from Somalia alone accounted for 11.3% of all refugee arrivals .McCabe (2011) further reports that between 2001 and 2010 the leading origin countries of African immigrants were Somalia (59,840 or 40%) of the total African refugee arrivals, Liberia(23,948 or 16.0%), Sudan (18,869 or 12.6%), Ethiopia(11,400 or 7.6%), Burundi(9,869 or 6.6%), the Democratic Republic of Congo (7,900 or 5.3%), Eritrea (6,493 or 4.3%), and Sierra Leone(6,280 or 4.2%). During the same period, the African nationals accounted for 21.2% (58,232 of the 274,848 total individual granted asylum .The leading countries of origin for African nationals granted asylum were Ethiopia (17.1%)of total African asylum grants), Cameroon(10.5%), and Egypt(8.5%) .The overrepresentation of African immigrants among U.S. refugees owes to several factors among the main ones identified by (Attoh, 2010) being: religious and ethnic strife as in Sudan; clan warfare, droughts, and famine as in Somalia; genocide and political persecution as in Rwanda and Sudan; civil strife as in Liberia, and other forms of instability in various countries of Africa.

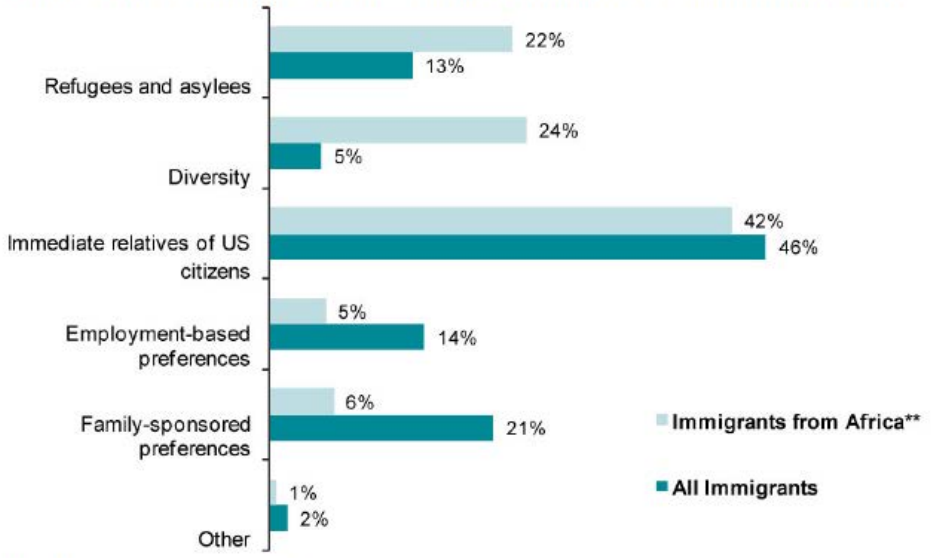
Nearly half of all immigrants who received green cards through the diversity visa lottery program in 2010 were born in Africa. "Established by the Immigration Act of 1990, the U.S Diversity Immigration Visa program offers certain persons from countries with low rates of immigration to the United States the opportunity to enter a "green card lottery" administered by the United States Department of State. The African born accounted for 48% (23,903) of the 49,769 persons who obtained Legal Permanent Residence through the program in 2010(McCabe, 2011)". McCabe(2011),argues that although diversity immigrants make up only a small share of persons granted legal Permanent Residence status each year(about 5% in 2010), diversity immigrants from five African countries- Ethiopia(3,987), Egypt(3,447), Nigeria(2,279), and Ghana(2,086)-collectively accounted for 14.5% of all Africans who obtained Legal Permanent Residence in 2010 An estimated 4,550 Africans received temporary protection from removal under Temporary Protection Status and Deferred Enforced Departure. United Citizenship and Immigration Services (USCIS) has estimated that 700 individuals from Sudan and 250 individuals from Somalia benefit from TPS. USCIS has also estimated that 3,600 Liberians reside in the United States under Deferred Enforced Departure.

		Total Admissions	Family Preferences (US citizens and others) (%)	Refugees and Asylees (%)	Diversity (%)	Employment and Other (%)
All immigrants		1,042,625	66	13	5	16
*All immigrants from Africa***		101,355	48	22	24	6
Country of Origin	Cape Verde	1,668	98	-	0	1
	Malawi	164	79	2	7	13
	Senegal	1,285	73	7	11	9
	Gambia	859	70	17	3	9
	Nigeria	13,376	70	1	22	7
	Ghana	7,429	66	2	28	4
	Angola	148	61	20	9	9
	Mali	528	60	19	5	16
	Burkina Faso	377	57	14	24	5
	Ethiopia	14,266	52	19	28	1
	Uganda	1,085	52	27	12	9
	Sierra Leone	2,011	51	24	21	4
	South Africa	2,758	49	0	10	41
	Kenya	7,421	44	19	31	6
	Togo	1,563	44	24	30	2
	Benin	486	37	13	46	5
	Zimbabwe	1,274	36	43	5	17
	Côte D'Ivoire	1,621	35	41	17	7
	Sudan	2,397	35	44	20	2
	Tanzania	1,850	33	56	4	7
	Guinea	1,379	30	56	8	6
	Cameroon	4,161	28	32	37	2
	Liberia	4,837	28	55	16	1
	Eritrea	1,656	27	47	23	3
	Congo, Republic	968	21	53	23	4
	Rwanda	489	18	70	9	3
	Somalia	4,558	17	82	1	1
	Congo, Democratic Republic	1,764	9	59	31	2
	Burundi	841	3	91	4	2
	(Includes North Africa)					
	Balance of Africa	18,136	50	8	34	8

Note: * Legal admissions include immigrants obtaining permanent residency upon arrival in the United States as well as those who apply for and receive LPR status after substantial periods of residency in the country without such status.
** Includes African immigrants of all races; the legal admissions data disaggregate by country of origin and not by race.
Source: DHS, "Table 10: Persons Obtaining Legal Permanent Resident Status by Broad Class of Admission and Region and Country of Birth: Fiscal Year 2010."

Table 1. Legal Admissions," by Class, for African Immigrants and Sub-Saharan Origin Countries, FY 2010

Figure 4. Legal Admissions* by Class for All US immigrants and African Immigrants,



Note: * Legal admissions include both immigrants obtaining permanent residency upon arrival in the United States as well as those who apply for and receive LPR status after substantial periods of residency in the country without such status.
** Includes African immigrants of all races; the legal admissions data disaggregate admissions by country of origin and not by race.
Source: US Department of Homeland Security (DHS), "Table 10: Persons Obtaining Legal Permanent Resident Status by Broad Class of Admission and Region and Country of Birth: Fiscal Year 2010," in *Yearbook of Immigration Statistics* (Washington, DC: DHS, 2010, revised March 30, 2011), www.dhs.gov/files/statistics/publications/LPR10.shtm.

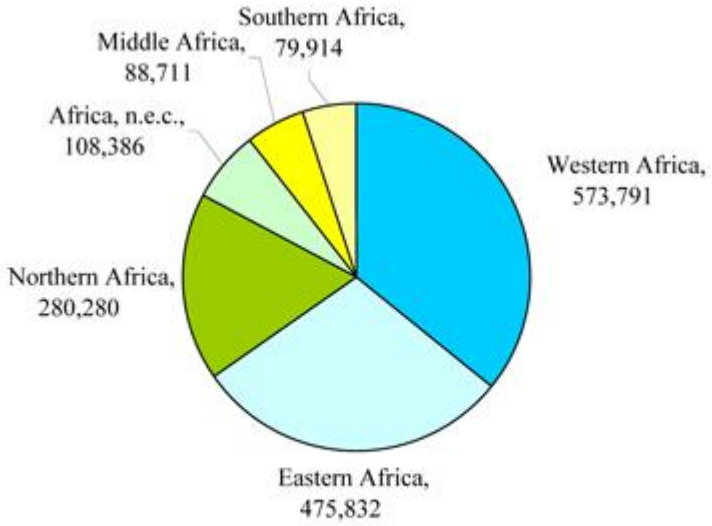
Regional Comparisons

We will now compare the admission classes to find out if there are regional differences among African immigrants from different sub-regions .As far as refugee admissions are concerned, the principal source regions are Eastern and Central Africa. These are the most troubled and unstable regions producing a large number of refugees who are running away because of political, religious, ethnic, or environmental issues in their home country. With respect to the diversity visa program, the largest numbers have come from the western and eastern sub regions of the continent. According to (Healthe,1993)the shares of immigrants admitted through family reunification channels were highest for African countries with the longest history of emigration to the United States led by Cape Verde (98%), followed by Malawi, Senegal, Gambia, Nigeria, and Ghana. All these countries except for Malawi are in the Western Africa region. The most probable reason is that the Western Africa region is the leading sending region of migrants to the United States as shown on **Figure 5.** These African immigrants are likely to petition for their family members to join them in the United States. As shown on Table **1**, the shares of family based admissions are lowest in countries where refugees comprise the largest class of admissions most notable in the countries of Central and Central Africa such as Zimbabwe, Sudan, Tanzania, Congo, Eritrea, Rwanda, Somalia and Burundi.

Summary and Conclusions

The largest influx of African immigrants to the United States is a recent phenomenon which has accelerated since the 1980s. The number of African immigrants in the United States increased from just fewer than 200,000 in 1980 to about 1.5 Million in 2009. Almost two thirds of African immigrants to the United States are from the Western and Eastern regions of Africa. The top countries of origin for African immigrants are: Nigeria, Ethiopia, Egypt, Ghana, and Kenya. The classes of admission for African immigrants are very diverse.

In 2010 48% of the African immigrants had got their admission trough family relationships, 24% through the diversity visa lottery program, 22% as refugees, 5% through employment and the remainder through other means. The paper shows that there are major differences between African immigrants in comparison with all U.S immigrants in almost every admission class. Within Africa, there are also regional differences with respect to the admission classes for instance a large number of refugees are from Eastern and Central Africa while the numbers of admissions for family reunification are highest for Western Africa.



Source: 2010 American Community Survey, Table B05006: "Place of Birth for the Foreign-Born Population in the United States."
n.e.c. = "not elsewhere classified."

Figure 5. African Foreign-Born Population by Region of Birth, 2010

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Double Helix Structure and Finite Persisting Sphere Genetic Algorithm in Designing Digital Circuit Structure

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Abstract

This paper proposes a new approach of chromosome representation in digital circuit design which is Double Helix Structure (DHS). The idea of DHS in chromosome representation is inspired from the nature of the DNA's structure that built up the formation of the chromosomes. DHS is an uncomplicated design method. It uses short chromosome string to represent the circuit structure. This new structure representation is flexible in size where it is not restricted by the conventional matrix structure representation. There are some advantages of the proposed method such as convenience to apply due to the simple formation and flexible structure, less requirement of memory allocation and faster processing time due to the short chromosomes representation. In this paper, DHS is combined with Finite Persisting Sphere Genetic Algorithm (FPSGA) to optimal the digital circuit structure design. The experimental results prove that DHS uses short chromosome string to produce the flexible digital circuit structure and FPSGA further optimal the number of gates used in the structure. The proposed method has better performance compared to other methods.

Key words: Digital circuit, Genetic Algorithm, FPSGA, Double Helix Structure.

1. Introduction

Nowadays, researchers apply the optimization approach in various fields of studies. These methods represent the problem in the form of coding and to be processed by the computer. Simpler design flow is more convenience to the user as well as to minimize the task to the processor. In digital circuit design, the representation of the chromosomes using Cartesian Genetic Programming (CGP) is first introduced by Miller and Thomson [1] [2].They proposed a chromosome representation in the form of linear string of integers from an indexed graph. After that, they developed another approach which is Developmental Cartesian Genetic Programming (DCGP) [3]. DCGP has a complex transformation between the genotype and encoded CGP graph from a defined program in the genotype. Then, it will be run inside the note of the phenotype [4].
Slowik in [5][6] explained about the representation of multi- layer chromosome in designing digital circuit. The author attempts to prove that the representation from single- layer to multi-layer chromosome can help to improve the algorithms. In other approaches, Coello et al, 2000 used the idea from Louis in encoding the chromosome. The bi-dimensional matrix was used where the element in the matrix is the gate type where it receives input from the previous array [7] [8]. In this paper, a new approach Double Helix Structure (DHS) is proposed which use short chromosome string representation in the digital circuit structure design and the structure is further optimized by Finite Persisting Sphere Genetic Algorithm (FPSGA).

2. Double Helix Structure in Digital Circuit Design

2.1. Double Helix Structure of DNA

DNA present in the chromosome processes the genetic information in all living things. The biology field revealed that the structure of the DNA is modeled by the double-helix arrangement [9].
Double helix structure consists of two identical helices tangled about a common axis. The DNA is making up of four types of molecules, adenine, thymine, guanine and cytosine (A, T, G and C). The term of "base pairs" is used to characterize the pair combination of A with T and G with C [9] [10] as shown in Figure 1.

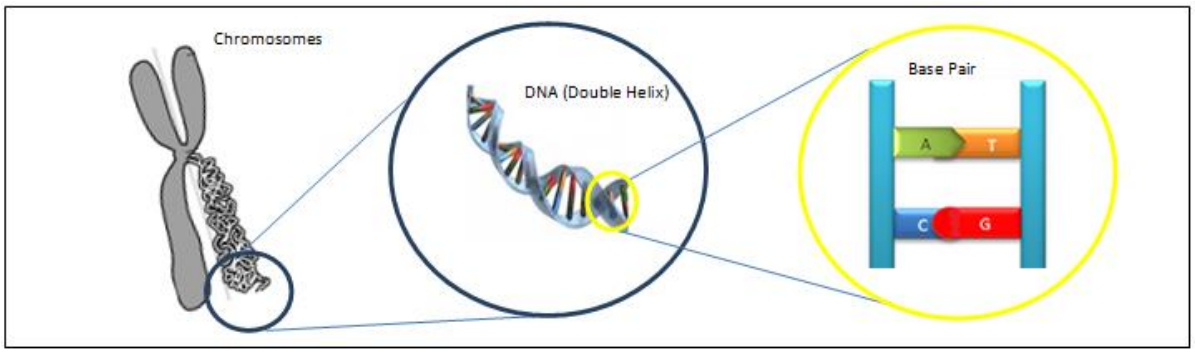


Figure 1. Double Helix Structure of DNA in the Chromosomes

The reproduction of DNA is called DNA replication where biological inheritance in all living organism occur. In the process of DNA replication, two identical molecules will be produced. Each strand of the double stranded DNA serves as template for the production of the paired strand [10]. The illustration of the process is shown in Figure 2.

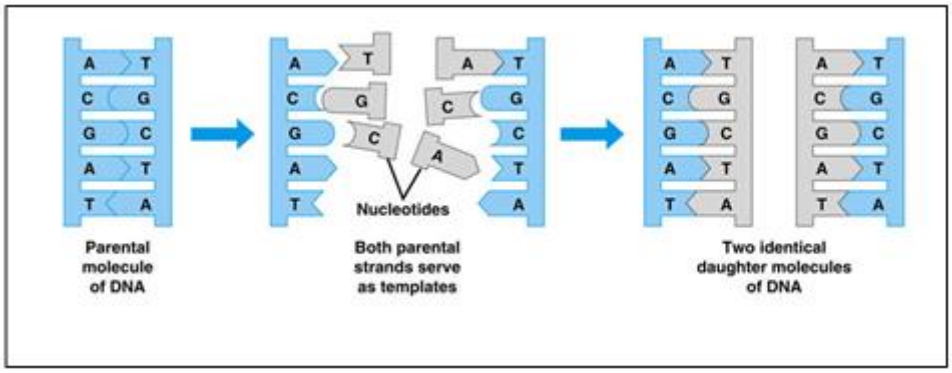


Figure 2. DNA Replication [11]

2.2. Double Helix Structure

The idea of DHS in digital circuit design is inspired from the natural formation of DNA structure in human body. However, only two molecules are responsible in forming a base pair. They are static and dynamic components. The illustration of the proposed idea is shown in Figure 3.

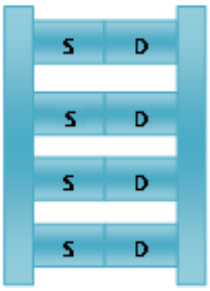


Figure 3. Base Pair in DHS

The dynamic component of the base pair comprises of bit string where it is used to encode the type of logic gates in the design of the digital circuit. It represents in the form of real number from 0 to 7. Each bit has different function of logic gates and can be defined from Table 1 [12]. The representation of number 6 and 7 in table 1 show the function of wire. The output of wire 1 depends on the input 1 while the output of wire 2 will depend on the input 2.

Table 1. Logic Gates Function and Bit Representation

Chrom	Operation	Truth Table
0	OR	A B X 0 0 0 0 1 1 1 0 1 1 1 1
1	AND	A B X 0 0 0 0 1 0 1 0 0 1 1 1
2	NOR	A B X 0 0 1 0 1 0 1 0 0 1 1 0
3	NAND	A B X 0 0 1 0 1 1 1 0 1 1 1 0
4	XNOR	A B X 0 0 1 0 1 0 1 0 0 1 1 1
5	XOR	A B X 0 0 0 0 1 1 1 0 1 1 1 0

6	Wire1	Output=input1
7	Wire2	Output=input2

For the offspring production, crossover and mutation operation will be performed on the dynamic structure only while the static structure will serve as template during the process. After the process of crossover and mutation, it will be combined together to their respective static pair for the fitness evaluation process.

Static structure functions as the input selector for the input of the gate; it is coded in the dynamic component. The static structure will not be affected by the process of genetic operators. One static bit provides a pair of input combination for a gate where the code is flexible and can be designed by the programmer.

The static part will not perform any transformation and the location is static in its generation. The representation of the static bit is in the form of real number and the total number of the bit is similar with the number of bit in the dynamic part where one input selector is denoted for one logic gate. In this approach, the total length of the chromosome is twice the number of gates.

The size of the chromosome can be started from as small as 6 bits. However, if there is no feasible solution found, the size can be increased by two bit which is one bit for static bit and one bit for dynamic bit. Figure 4 shows the link between the bits in the chromosome. S1 is responsible to supply input for D1, S2 for D2, S3 for D3 and it is applied to the entire structure.

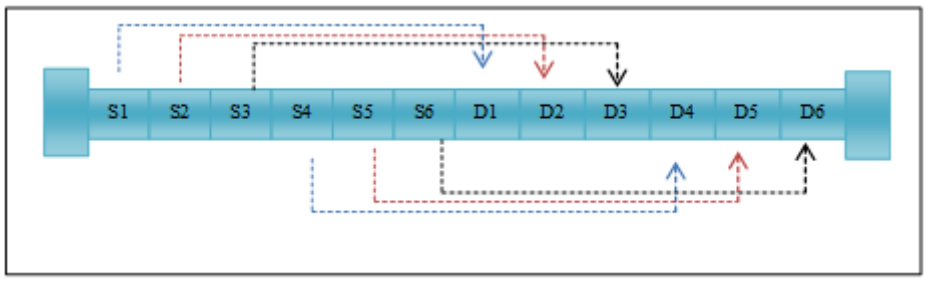


Figure 4. Link between Bits

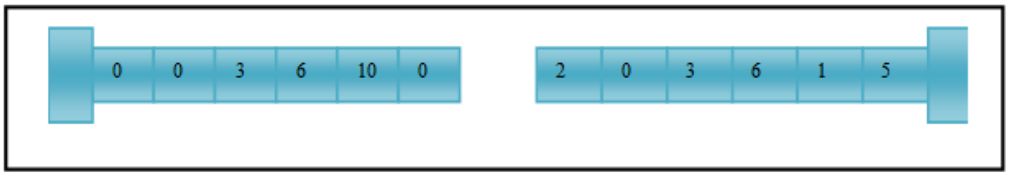
Table 2 represents the input combination in the static structure for the input of a 3-bit *f*(a,b,c) digital circuit. The rule of the input combination is that a combination of input pairs can only be repeated two times, for example, if it firstly exists in S1, therefore it can only be repeated in S2 and S3.

For the configuration in Table 2, the maximum bit of S1 is 2, S2 is 5, S3 is 9, S4 is 8, S5 is 10 and 13 for S6 where it provides different selections of input for the gate. The programmer can propose the input combination based on their need in the circuit design.

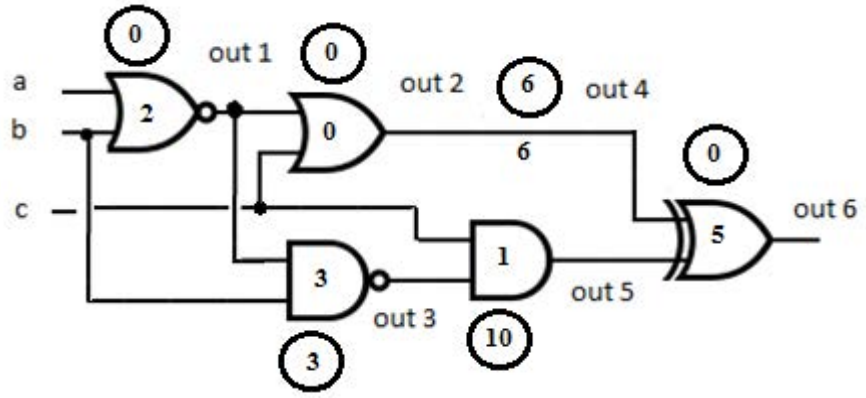
Table 2. The configuration of Input Combination in Static Component of DHS

Bit	S1		S2		S3		S4		S5		S6	
	I/P1	I/P2	I/P1	I/P2	I/P1	I/P2	I/P1	I/P2	I/P1	I/P2	I/P1	I/P2
0	a	b	out1	c	out1	out2	out3	out2	out4	out3	out5	out4
1	a	c	out1	b	out1	a	out3	out1	out4	out2	out5	out3
2	b	c	out1	a	out2	a	out3	a	out4	out1	out5	out2
3	-	-	a	b	out1	b	out3	b	out4	A	out5	out1
4	-	-	a	c	out2	b	out3	c	out4	B	out5	a
5	-	-	b	c	out1	c	out1	out2	out4	C	out5	b
6	-	-	-	-	out2	c	out2	a	out3	out2	out5	c
7	-	-	-	-	a	b	out2	b	out3	out1	out4	out3
8	-	-	-	-	a	c	out2	c	out3	A	out4	out2
9	-	-	-	-	b	c	-	-	out3	B	out4	out1
10	-	-	-	-	-	-	-	-	out3	C	out4	a
11	-	-	-	-	-	-	-	-	-	-	out4	b
12	-	-	-	-	-	-	-	-	-	-	out4	c

The example of the genotype-phenotype mapping can be seen in Figure 5. The numbers in the circles of figure 5b are denoting the static component of the DHS chromosome while the numbers in the gate denote the dynamic component of the chromosome.



(a)



(b)

Figure 5. (a) Genotype and (b) Phenotype Mapping of DHS Chromosome

In the proposed method, during the process of crossover and mutation, the static and dynamic components will be separated. Referring to Figure 6a to 6c the bits in the static part of the parent operate as template for the base pair while the dynamic part proceeds with the crossover and mutation process. After the process, the dynamic part will be combined back to their respective static pair.

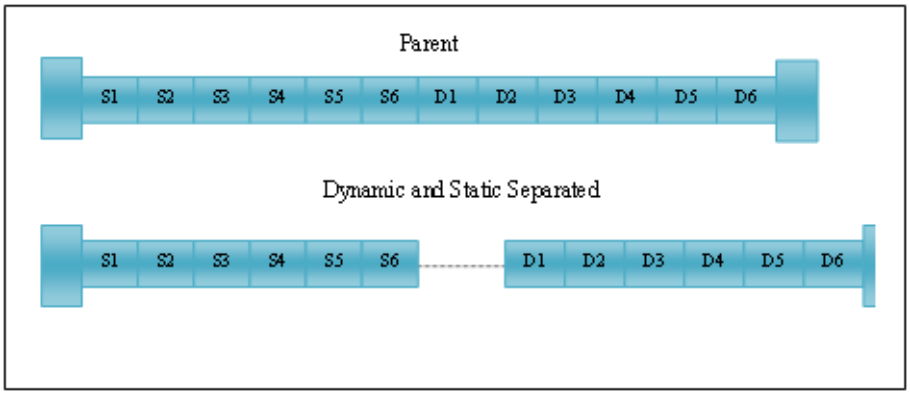


Figure 6a. Separation of Dynamic and Static to Prepare for Crossover and Mutation Process

Figure 6b. The DHS chromosome after the Process of Crossover and Mutation

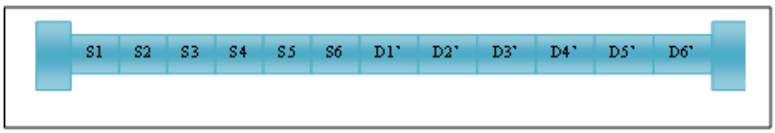


Figure 6c. Dynamic and Static Component Combined Together to Form Offspring

3. Finite Persisting Sphere Genetic Algorithm (FPSGA)

The process of FPSGA is comprised of uni-chromosome crossover and Finite Persisting Sphere.

3.1. Uni-chromosome Crossover

All selected chromosome from the process of Roulette Wheel Selection will have similar chances to produce child. In the uni-chromosome crossover, the number of child is depended on the number of Finite Persisting Sphere loop. Child produced from the uni-chromosome crossover process is formed from the revolution of the chromosomes in the horizontal orientation of the chromosomes [13].

The uniqueness of the uni-chromosome crossover is that one single parent can be very productive in producing child. In Genetic Algorithm (GA), children produced from the crossover will inherit various genes and information from its parent. In uni-chromosome crossover, the children will compete to each other, be ranked and only the fittest child will represent its family and bring the best genes to compete with other child in other family from the crossover process of different individuals. This is how the synergy is increased for all individuals in a same population.

There are several types of crossover operator such as one point crossover and two point crossovers. From [14], the process of one point crossover can be summarized in the following format:

Chromosome of Parents:

$$\text{Parent 1} = \{a_1, a_2, \ldots .a_n\} \quad (1)$$
$$\text{Parent2} = \{b_1, b_2, \ldots .b_n\} \quad (2)$$

Chromosome of Offspring:

$$\text{Offspring 1} = \{a_1, a_2, \ldots .a_i', b_{i+1}, \ldots \ldots \ldots, b_n\} \quad (3)$$
$$\text{Offspring2} = \{b_1, b_2, \ldots .b_i', a_{i+1}, \ldots \ldots \ldots, a_n\} \quad (4)$$

where:

$a_i' = \alpha_i a_i + (1-\alpha_i) b_i$

$b_i' = \alpha_i b_i + (1-\alpha_i) a_i$

The process of this type of genetic recombination will swapped the contents of the chromosomes in order to produce child. In one point crossover, two parents will produce two children. Uni-chromosome crossover is proposed to improve the productivity of parent in producing child. The aim of uni-chromosome crossover is as the number of child is increased; the probability to have high-quality genes is also increased. It will in addition widen the diversity of the chromosome distribution where it can prevent the possible solution from being trapped in local optimum area. Depending on the number of Finite Persisting Sphere, the process of uni-chromosome crossover can be represented as follows [13]:

Chromosome of 1 Parent:

$$\sum_{i=0}^{i=P} \mathbf{X}, \{x_1, x_2, x_3, x_4 \ldots .x_{n-1}\} \quad (5)$$

Let Number of Finite Persisting Sphere= 3;
Chromosome of offspring:

$$\text{Offspring 1} = \{x_1', x_2', x_3', x_4', \ldots .x_{n-1}', x_0'\} \quad (6)$$
$$\text{Offspring 2} = \{x_2', x_3', x_4', \ldots .x_{n-1}', x_0', x_1'\} \quad (7)$$
$$\text{Offspring 3} = \{x_3', x_4' \ldots .x_{n-1}', x_0', x_1', x_2'\} \quad (8)$$

where

P = No of population

n= No of variables/allele

Instead of producing 2 children from a couple of parents, uni-chromosome crossover can produce greater number of children from an individual parent. Equation 5 represents a parent from a population of possible solution in a problem. The chromosome is built up of n number of genes. Depending on the number of Finite Persisting Loop, the number of child produced is equivalent to it as shown in Equation 6 to 8. Each child will be evaluated based on their fitness value.

3.2. Finite Persisting Sphere Process

Finite persisting sphere is introduced in order to maintain the diversity of good genes in a population. It can be defined as a loop where it contains a number of processes and this loop will be terminated as the predefined number of loop is achieved. This loop is to ensure that each child produced from the uni-chromosome crossover process will be evaluated and ranked according to their fitness value. The chromosomes in this area are not affected by the mutation process. The best offspring from each parent will be retrieved and the rest will continue the next process of the FPSGA [13].
The pseudo code of the process of finite persisting sphere can be explained as follows:

1.0 Defined the number of Finite Persisting Sphere loop, N_{FPS}
2.0 As N_{FPS} did not achieve:
do
2.1 Uni-chromosome crossover
2.2 Evaluate the fitness function of each child
2.3 Rank the chromosome according to their fitness
2.4 Store the best chromosome from Finite Persisting Sphere process as F_C
end

The complete procedure of FPSGA in designing digital circuit is shown in Figure 7. The FPSGA process is shown in the highlighted box.

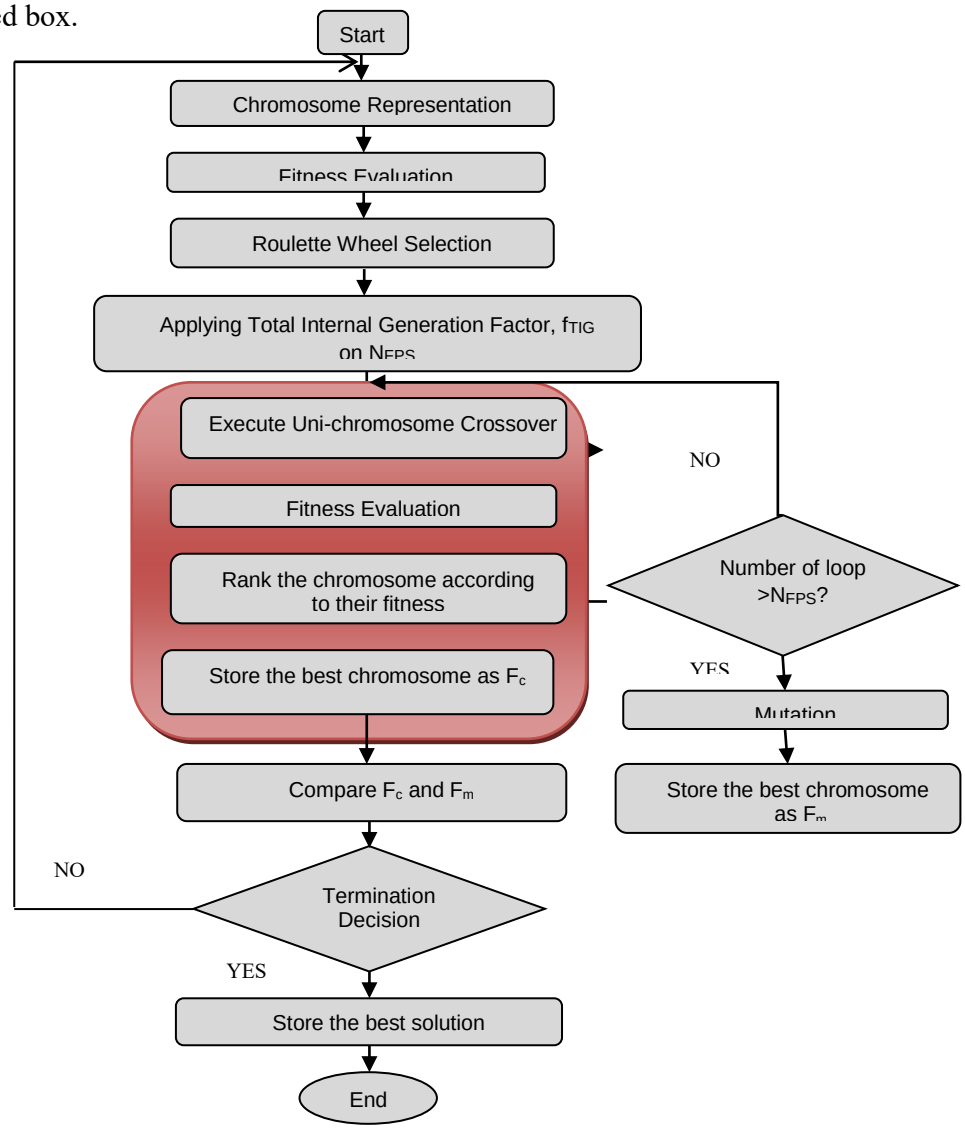


Figure 7. Full Process in FPSGA

4. The Digital Circuit Design Using FPSGA and Double Helix Structure of Chromosomes

As discussed earlier, the chromosome used for the digital circuit is encoded using the DHS technique. The chromosomes are then being used in designing digital circuit design and the engine of optimization which is FPSGA will optimize the number of gate in the circuit. There are four examples of circuits with different minterms designed and analyzed in this paper. The GA parameters applied in the experiments are listed in Table 3.

Table 3. GA Parameters in designing digital circuit.

Experiment	1	2	3	4
Population Size	55	55	50	500
Length of Chromosome (bits)	8	8	8	16
Probability of crossover	1.0	1.0	1.0	1.0
Probability of mutation	0.1	0.1	0.1	0.3

4.1. Example 1

The first design in the experiment involves three inputs and one output of digital circuit. The minterm and the truth table of the circuit given as follows:

Minterm:

$$f(a,b,c) = \sum (3, 5, 6) \qquad (9)$$

Truth table:

Table 4. Truth table of the circuit in Example 1

INPUT			OUTPUT
A	B	C	z
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

The designed and optimized circuit is retrieved at generations 101. The genotype and phenotype of the circuits is shown in Figure 8.

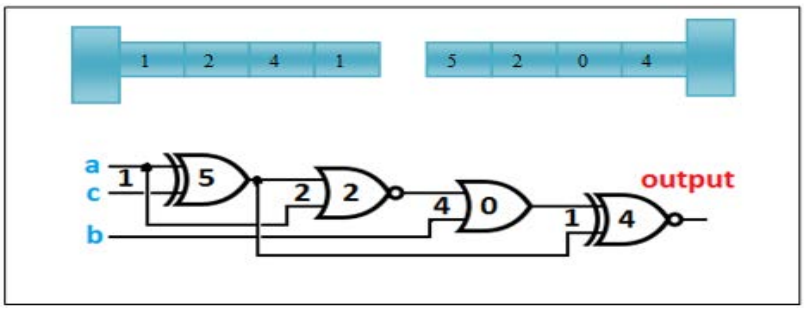


Figure 8. The genotype and phenotype of Example 1

4.1.1. Analysis I

Table 5. Comparison of the result for Example 1

Criteria	Proposed Method	MLCEA-TC [6]	GA with bidimensional Matrix [7]
Number of Gates (optimized)	4	4	4
Length of Chromosome/ Pattern of Gates	8	25	75
Population Size	55	100	300

Referring to Table 5, the number of gates of the designed circuits in Example 1 for all the methods are the same which is 4. However, it is found that the length of the chromosomes designed by the DHS is only 8 bits while by using MLCEA-TC [6], 25 patterns of gates are used and 75 bits are used in normal GA with bi-dimensional matrix [7]. By the proposed method, the number of population used is only 55 while MLCEA-TC used 100 population and GA with bidimensional matrix used 300 populations. It is not only promising less memory usage and less data to be processed but it also helps in reducing the processing time of the design. It can be concluded that by combining the chromosome representation using DHS and optimizing the number of circuit using FPSGA, the proposed method are very reliable in designing digital circuit structure.

4.2. Example 2

The second design in the experiment involves four inputs and one output of digital circuit. The minterm and the truth table of the circuit given as follows:

Minterm:

$$f(a,b,c,d) = \sum (2,3,5,6,8,9,12,15) \qquad (10)$$

Truth table:

Table 6. Truth table of the circuit in Example 2

INPUT				OUTPUT
A	B	C	D	z
0	0	0	0	0

0	0	0	1	0
0	0	1	0	1
0	0	1	1	1
0	1	0	0	0
0	1	0	1	1
0	1	1	0	1
0	1	1	1	0
1	0	0	0	1
1	0	0	1	1
1	0	1	0	0
1	0	1	-1	0
1	1	0	0	1
1	1	0	1	0
1	1	1	0	0
1	1	1	1	1

The designed and optimized circuit is retrieved at generations 51. The genotype and phenotype of the circuits is shown in Figure 9.

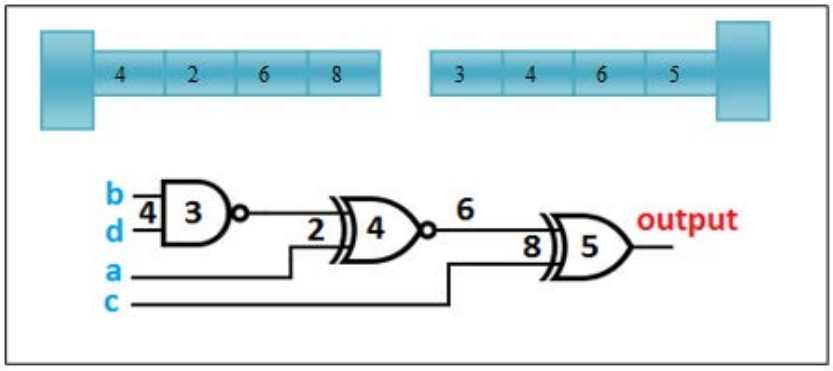


Figure 9. The genotype and phenotype of Example 2

4.2.1. Analysis II

Table 7. Comparison of the result for Example 2

Criteria	Proposed Method	GA with matrix representation [15]
Number of Gates (optimized)	3	3
Length of Chromosome/ Pattern of Gates	8	10
Population Size	55	1000

In the second example of the experiment, Table 7 shows that the optimized number of gates is the same for both methods. However, only 8 bits of chromosomes are being used by using the DHS method while 10 bits used by GA with matrix representation. It also shows that the proposed method only needs 55 number of

population in making the circuit functioning while the GA with matrix in [15] needs 1000 populations to achieve the objectives. Again the proposed method shows an outstanding performance of the method in designing the digital circuit as well as optimizing the number of gates.

4.3. Example 3

The third design in the experiment also involves four inputs and one output of digital circuit. The minterm and the truth table of the circuit given as follows:
Minterm:

$$f(a,b,c,d) = \sum (10, 11, 12, 13, 14, 15) \qquad (11)$$

Truth table:

Table 8. Truth table of the circuit in Example 3

INPUT				OUTPUT
A	B	C	D	Z
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	0
1	0	0	0	0
1	0	0	1	0
1	0	1	0	1
1	0	1	-1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

The designed and optimized circuit is retrieved at generations 51. The genotype and phenotype of the circuits is shown in Figure 10.

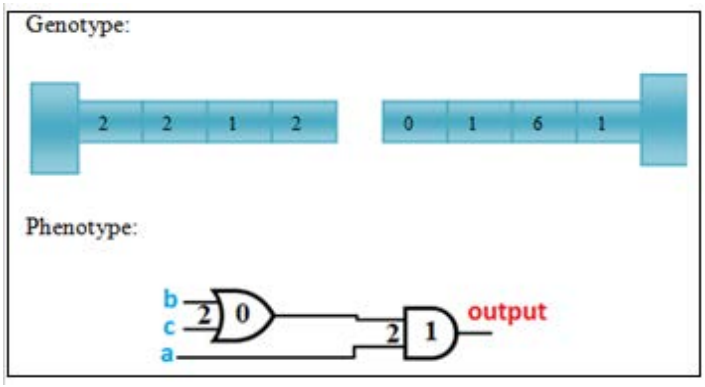


Figure 10. The genotype and phenotype of Example 3

4.3.1. Analysis III

Table 9. Comparison of the result for Example 3

Criteria	Proposed Method	GA with binary bit string representation [2]
Number of Gates (optimized)	2	4
Length of Chromosome/ Pattern of Gates	8	36
Population Size	50	100

Table 9 shows that the number of gates in the designed circuit after it has been optimized is 2 by using the proposed method and 4 by using the GA with binary bit string representation. It shows that FPSGA is more efficient in optimizing the number of circuit compared to GA with binary bit string representation. The length of the chromosomes designed by the DHS is only 8 bits while the compared method used 36 bits which is too long and wasting the memory application. It also shows that the number of population used by the proposed method is only half of the number used in [2]. Again, it shows the capability of the FPSGA and DHS in designing and optimizing the digital circuit structure.

4.4. Example 4

The fourth design in the experiment also involves four inputs and one output of digital circuit. The minterm and the truth table of the circuit is given as follows:
Minterm:

$$f(a,b,c,d) = \sum (0, 1, 3,6, 7, 8, 10, 13) \quad (12)$$

Truth table:

Table 10. Truth table of the circuit in Example 4

INPUT				OUTPUT
A	B	C	D	Z

0	0	0	0	1
0	0	0	1	1
0	0	1	0	0
0	0	1	1	1
0	1	0	0	0
0	1	0	1	0
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	0
1	0	1	0	1
1	0	1	-1	0
1	1	0	0	0
1	1	0	1	1
1	1	1	0	0
1	1	1	1	0

The designed and optimized circuit is retrieved at generations 20. The genotype and phenotype of the circuits is shown in Figure 11.

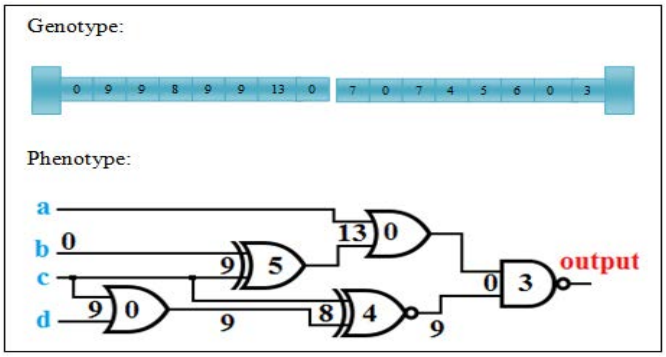


Figure 11. The genotype and phenotype of Example 4

4.4.1. Analysis IV

Table 11. Comparison of the result for Example 4

Criteria	Proposed Method	MLCEA-TC [6]	GA with bidimensional Matrix [7]
Number of Gates (optimized)	5	6	10
Length of Chromosome/ Pattern of Gates	16	25	75
Population Size	500	100	1000

Table 11 shows the result of the digital circuit structure design for Example 4. The proposed method gives the least number of gates after the design has been optimized which is 5 while the MLCEA-TC and GA with bidimensional matrix used 6 and 10 gates respectively. Although the population size of the proposed method is quite large compared to MLCEA-TC, the proposed method only used 16 bits of chromosome and the MLCEA-TC used 25 bits of chromosome. GA with bidimensional matrix used too many bits in representing the chromosome and at the same time, it used a large number of population in designing the circuit.

5. Conclusion

From the experiments that have been conducted and analyzed, the results show that DHS is very efficient in representing the chromosomes of digital circuit structure. The representation is short, simple and convenient to conduct. The programmer can creatively create their database of input combination and freely use it to depend on their needs. Since the length of the chromosome is short and simple, it can help to reduce usage of the memory. It will also reduce the processing time in designing the circuit. FPSGA, which is the optimization engine in this proposed method, proved that it is reliable in reducing the number of gates compared to other evolutionary method as can be seen in part 4 of this paper. In conclusion, designing the chromosome of digital circuit using DHS and optimizing the number of gates using the FPSGA is very effective, efficient and reliable.

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THE ROLE OF MARKETING AUDIT AND VALUE OF INFORMATION

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ABSTRACT

The paper deals with marketing audit and the importance of valued information which can contribute to the detection of opportunities and threats in the market. The introductory chapter of this article deals with the definition of marketing audit, individual characteristics and properties of the marketing audit. In further, we describe the methods and components of marketing audit. Then we point out the process of implementation for marketing audit. The article also contains a definition of information and its value in the marketing audit.

Key words: Information, marketing audit, value

JEL Classification: M31

1 The importance of marketing audit

The term of marketing audit appeared in literature in the eighties last century, especially in the works written by **Ph. Kotler, M. McDonald** and **H. Meffert**.
One of the definition says that a **marketing audit** is: *„a comprehensive, systematic, independent and periodic examination of the environment, objectives, strategies and activities of the company, which aims to identify problem areas and opportunities and recommendations for further action to streamline marketing company. "*[1]
According to the previous definition implies that a marketing audit comprises the steps systematically and covering all marketing activities and areas of business.

After carrying out the analysis, it is important to create recommendations and plans of action to improve the situation in the field of marketing. This involves examining which is systematic, independent and periodic, the result represents four basic characteristics of marketing audit.

According to the definition of **Ph. Kotler**, we can deduce the four basic characteristics of marketing audit. It includes the following:

- integrated,
- systematic,
- independent,
- periodic.

[1] KOTLER, P . – ARMSTRONG, G.: *Principles of Marketing*. USA : Peaeson Education, 2010. p. 111.

Integrated

It covers all activities of the organization in marketing and not just parts which are problematic. It may be undertaken in the form of functional audits. This kind of audit is substantive and can be helpful. However, sources in the detection of problems and failures in organizations are more effective integrated and completed marketing audit.

Systematic

Marketing audit presents an ordered sequence of steps that include enterprise marketing environment, internal marketing system and marketing activities. The action plan and recommendations contain with short-term and long-term proposals to improve the efficiency of marketing in organizations.

Independent

Marketing audit should be carried out by independent experts called in particular, marketing auditors who have the necessary knowledge. It is carried out independently and main objectively. Audit executed by external staff brings benefits of higher flexibility, objectivity, independence and wider utilizing of experience.

Periodic

Audit should be carried out regularly, not just when there are some problems. Marketing audit serves as a prevention and maintain organization in a favorable position in the market.

The audit is associated with the financial side of the business. It is implemented through a defined set of accounting standards that are clear, logical and easily available. The importance of marketing audit is that it is an independent examination of the marketing performance in particular company whose goals are to identify problem areas and marketing opportunities and propose measures to improve the situation. Marketing audit examines the internal situation of the organization. It answers the question of where the company is currently on the market place. It emphasis on marketing activities and position of the organizations in the market place.

The audit can be considered as an independent assessment of proposals, solution provider and routine operation of an information system. The audit has the ability to meet all safety requirements.

1.1 Components and methods of marketing audit

Marketing audit deals with the six main components that determine marketing situation in the particular organization. These components are explored by six major types of marketing audit.

- Audit of marketing environment – it deals with factors from external and internal environment in terms of their past development and expected trends which can mean either the opportunities or risks for the organization.
- Audit of marketing strategy – it checks how the marketing objectives and strategies of the organization are adapted to the external environment and corporate resources and options.

- Audit of marketing organizations – determine the ability of the marketing organization to implement the strategy from formal structure, functional effectiveness of interactions between different departments in the organization.
- Audit of marketing systems – it is focused on the part of operation for the four main marketing systems in the organization: marketing information system, marketing planning system, marketing control system and system for developing new products. It examines whether an organization achieves the objectives of marketing, whether these objectives correspond to the opportunities on the market.
- Audit of marketing productivity – it brings information about the profitability of individual aspects of the marketing program. It examines the effectiveness of the cost.
- Audit of marketing functions – in detail evaluate the individual components of the marketing mix.

The methods of making audit

In this part of the article we will point out individual methods of marketing audit. We can divide into the following:

Self audit – it implemented by the managers in particular company who through questionnaire will evaluate the results and methods of the work. In case of own audit, it is necessary that all the managers adapt the procedures and schemes, received training and follow up with the strict discipline in carrying out the audit.

Audit **realized by** another manager – manager from the another department within the organization evaluate the work of others.

Utilizing of external experts – in theory but especially in practice it's recommended to implement an audit using an external consultant mainly because of its greater objectivity. External audit is conducted independently, is bound by the relevant legislation and responsible for confidential data.

1.2 Process of marketing audit and its implementation

The implementation of marketing audit can be divided according to the various literature sources into several stages.

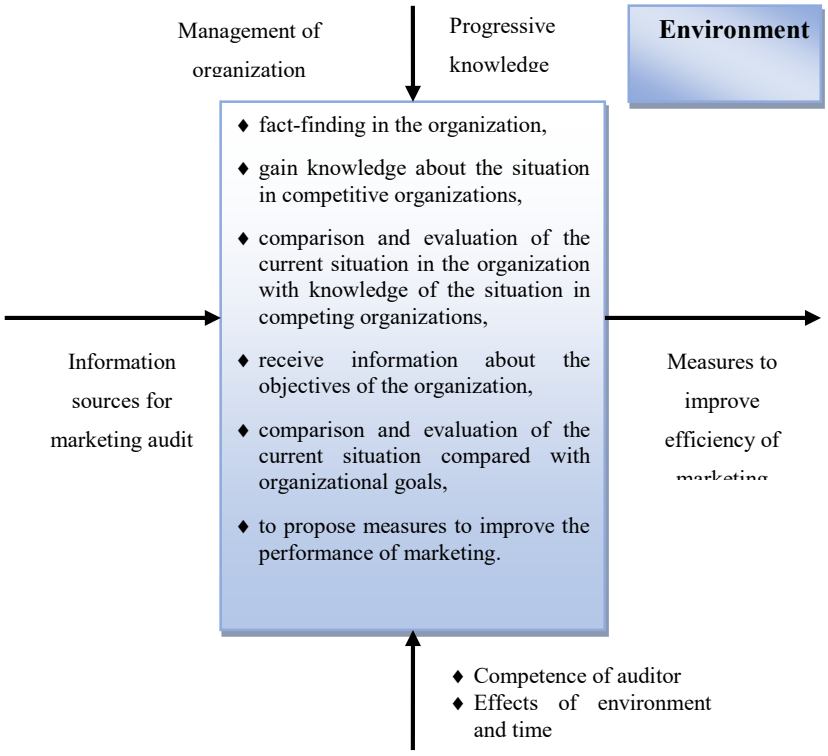
The first stage is to create a **plan of marketing audit** by auditor. In this audit plan we define the need for implementing various functional audits and it examines the availability of needed information resources. Auditor according to the meeting with the management of the organization where they agreed to specific audit procedures. They agreed on the purpose, scope, objectives, information sources, form of final report and the time period for establishing audit.

The second stage is the **implementation**. Audit realizes diagnostic steps, using the methods of logical analysis. It defines the problem and carries out the marketing analysis and behavior of the organization. According to these implemented analyzes we diagnose the issue. Auditor analyzes the objective facts that can be derived from past development. For instance, the analysis of marketing cost. It evaluates subjective elements. It reviews the questions of employees in the particular section of the organization and compare them with those of others.

The information sources for marketing audit:

- objective analysis of the marketing activities,
- subjective opinion of employees about efficiency of marketing systems,
- opinions of business partners and information based on development of economic environment from external sources.

The third stage is the preparation of the final report by the auditor which should be submitted to the management of the organization. Auditor expresses their opinion on the controlled matters. It proposes measures to correct the deficiencies.



Picture 1: Process of marketing audit
Source: Šalgovičová J. – Štefančiková, A.: *Procesný prístup v marketingu*, 2012, p. 223.

1.3 The value of information in marketing audit

For the existence of any company in the market the information is important. It also plays an irreplaceable role in the implementation of the marketing audit. The company can respond with the right information more effectively to the changes in the internal and external environment, to adapt and respond effectively.

We can define information as a knowledge communicated or received concerning a particular fact or circumstance. It can lead to an increase in understanding and decrease in uncertainty.
Information is valuable because it can affect behavior, a decision, or an outcome. For example, if managers are told their company's net profit decreased in the past month, he/she may use this information as a reason to

cut financial spending for the next month. A piece of information is considered worthless if, after receiving it, things remain unchanged.[2]

Information can be considered as a **valuable asset** of the company. Their quality and value can be found in terms of time, accuracy, confidentiality and form. Managers of companies are trying to get the right information from official meetings and **regular implementation of the marketing audit**.

P. Drucker said the following: *„manager will never be able to get all the information they should have. Most decisions must be based on incomplete information – either because the information is not available or their obtain could cost a lot of time and money.“*[3]

However, managers need relevant information on the basis which is able to provide them the right, operational and effective decisions. Employees who are responsible for marketing audits use the following information which is provided:

- by studying existing documentation (reports from previous audits, security policy, security project),
- a physical inspection of the relevant premises (direct – spaces where the new technology is in place, indirectly – access roads to the facility),
- interviews with employees and with suppliers.[4]

The value of information depends on four criteria such as:

- Form – the value of information increases thereby making form is closer to the requirements of the person who decides on that basis.
- Time – higher value has the information that is provided in time. Therefore, the lack of information can cause negative consequences,
- Availability – greater value has information that is available and meet the requirements such as time and availability.
- Character – it can be decided when and to whom will be provided. This is also influenced by the organizational structure and communication channels in the company. [5]

[2] Available from: http://www.businessdictionary.com/definition/information.html [18.01.2014].

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Experts and professionals predict that, if the information that is available is accurate it will have a more desired result. However, if this information itself will not help to make better decision then we can consider it that has no value at all.

Any of the information we could evaluate from the terms of:

- reliability,
- importance,
- level of confidentiality.

An audit has an irreplaceable role in a market economy. Its traditional function involves the utilizing of reliable and objective information that provide insight into the financial position and results of operations. The term audit in modern management became a tool for improving corporate management of the company. In order to be able to undertake an audit within an organization, the company needs to have a system in place and functions to ensure the organization, planning and information system which can capture signals from the external environment. Audit which is based on the relevant information can help organizations take advantage of all the opportunities which are provided by the market and thus avoid negative threats that may appear on the market. Therefore, we can conclude that valuable information has it's own important place and an irreplaceable role in the implementation of the marketing audit.

Acknowledgement

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DO THE "APPLES" BAD? AN EXPLORATORY STUDY ON STUDENTS' MORAL COGNITIVE ABILITY

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ABSTRACT

The purpose of this action study is to examine the moral cognitive ability among senior students who enrolled to Development Science program in Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia. Self-administered questionnaires were distributed to senior students at the end session of the final ethic class. The questionnaire is comprised of 3 sections intended to measure the student's moral cognitive level, respond on unethical behaviors and demographic section. The findings show the students have reached the conventional moral cognitive level. Most respondents agree that parents is the most important source for moral cognitive development and had moulds their moral characters. In parallel to their moral cognitive level, most students show disapproval to most unethical behaviors listed in the questionnaire. Nevertheless, we also found a trend of ethical relativism in students reasoning. Thus, it signals that improvement is needed in the delivery of ethics subject in order to increase the conventional moral cognitive to the post-conventional level. The post-conventional moral cognitive is required to ensure the moral principles are being upheld at all times and contexts. The originality of this study lies in attempt to investigate on moral cognitive ability based on Kohlberg moral cognitive framework among a group of university students. The topic is also in line with current emphasizes to improve employees ethical behaviors within all organizations.

Keyword: moral cognitive, ethics, conventional, pre-conventional, post-conventional; action study

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Introduction

Ethical employees become the most precious resources that being search by many organizations today (Ashkanasy et al. 2006). Brilliant experts who fail to abide with ethical principles may impose threats to organizations' efficiency and effectiveness. Besides, unethical agents can blow up various social and economics disasters (Schmidt et al. 2009 and Ashkanasy et al. 2006), such happened to Enron (Sridharan 2002 and Vershoor, 2002), Century Bank of Indonesia (Handoyo 2009), Iskandar project of Malaysia (Charles, 2011[a,b]) and few others (Sira, 2009). All the cases demonstrate that brilliant people with some ethics deficiencies can ruin many of our community system. A study by Trevino and Youngblood (1990) suggested two interesting terms on the discussion of employees' ethical behavior, namely the "bad apples" and the "bad barrels". The "bad apples" represent the analogy of a morally flawed individuals whose personal characteristic lead to the disposition of unethical behaviors. Meanwhile "bad barrels" refers to the organization's environment which had encourage the disposition of unethical choices or behaviors among it' members (Ashkanasy et al. 2006). Apart from that, latest study of Gonin et al. (2012) suggest another item in relation with the discussion of unethical behavior in organization, namely the "larder". "Larder" refers to broader societal context that has shaped the way people and organizations within the context behave. Although Gonin et al. (2012) emphasize the impact of "larder" to the unethical action, we still believe that there are some aspect of individual ability that is individually managed, thus it shapes the "apple" quality as well.

As far as "bad apples" is concern, individual moral cognitive ability is a pivotal individual factor that may determine ethics competency of future employees. Therefore, it is important to investigate the level of university's students' cognitive moral ability as they will be serving most of the future organizations. The investigation provides input for improvement in tertiary ethics education in order to develop more ethical competent professionals for the future.

Literature Review

Cognitive Moral Development (CMD) theory describes on the level of human cognitive ability in moral reasoning. The theory was developed by Kohlberg and widely used in various ethical cognitive studies (Kracher et al. 2002; Schmidt et al. 2009; Ashkanasy et al. 2006). Ashkanasy et al. (2006) study also found that cognitive moral development has significant influence on ethical decision-making. Their study shows that managers with low cognitive moral development behave more unethically when they learn that their organization condoned unethical decisions (behaviors). Contrary, managers with high cognitive moral development make more ethical decisions when they found they are in unethical organization's environment. Besides, study by Talwar and Kang Lee (2008) also shows that children lying behavior associates positively with their cognitive development. Other researchers had also conducted studies to explore moral awareness and moral development among students such as Suraiya and Mohd Yusof (2013); Lowry (2003); Butterfield et al (2000); DesJardins and Diedrich (2003); Maclagan (2003); Mintchik and Farmer (2009). Thus, moral cognitive ability is an important element to be nurtured in current tertiary education structure (Kracher et al (2002).

According to Kohlberg moral cognitive theory, a person's moral ability follows the same growing patterns of the physical, emotional and cognitive abilities (Velasquez 2002 and Ashkanasy et al. 2006). There are 3 levels of moral cognitive development following the Lawrence Kohlberg model:

1. Level 1: pre-conventional stage

   At this level the person is in their lowest moral cognitive capability as they only base their moral evaluation on externally imposed expectations, such to obey the rules and regulations or to follow the expectations of the most influential power who can create the pleasant or unpleasant results for them.

2. Level 2: conventional stages
   At this level the person tries to maintain the expectations of one's own family, peer group or nation to determine appropriateness and inappropriateness of their actions. They are not only conform to group expectations but also show some degree of loyalty to the group norms.
3. Level 3: post-conventional stages
   At this level the person reach to the highest level of moral capability. At this level the person not only accepting the values and norms of their own group, but demonstrates impartial evaluation that concern everyone's interest.

Moral cognitive development discussion also relates to individual moral character. Character refers to an acquired human quality derived from learned practices. Character also includes individual reasoning ability that contributes to the decision of the appropriateness of action and the greatest good (Marshall et al. 2011: 52). Thus, we posit that moral cognitive ability is part of the individual character which has developed since the early age and involved many parties. Amongst potential sources for moral cognitive development are parents, education institutions and approaches, teachers, religious authority, and friends (Velasquez 2002; Marshall et al. 2011; Cheung & Pomerantz 2012; and Klaiber 2009). Marshall et al. (2011) has proposed interesting information on the development of moral character and moral education in schools. According to Marshall et al. (2011), a powerful approach to a successful moral education must include multiple entities such as family, school and peers. The use of school-plus-family approach is found able to boost students' moral behavior (Marshall et al. 2011).

Individual reaction to moral and ethical issues is also determined by the moral issues intensity (Jones 1991). According to Jones Issue-Contingent Model (1991), moral awareness is influence by moral intensity and lead to different reaction towards encountered moral issues. There are 6 factors that contribute to moral intensity in particular moral issue (Jones 1991). The factors are (1) the magnitude of the consequences derived from the behaviors or decisions; (2) social consensus regarding the issue; (3) probability of occurrence of the expected consequences; (4) closeness of time between the behavior or decision and the expected consequence; (5) closeness of the moral issue and the particular agents; and (6) concentration of the expected effect of particular behaviors or decisions. Therefore, the respondents' responds to the three (3) vignettes of unethical behavior may also be influenced by the issue intensity factor.

Methodology

Survey technique had been used to obtain respond from 28 senior students who enrolled to Ethic and Development course during the academic session of 2012/2013. The questionnaire comprised of 3 sections, namely the moral cognitive, respond to ethical or unethical choices and demographic part. The moral cognitive measurement section contain 24 items which aimed to measure each level of moral cognitive comprised of pre-conventional, conventional and post conventional. Each level of moral cognitive comprised of eight (8) questions and respondents gave their answer on 5 point scale that ranged from (1) totally disagree to (5) totally agree. The Cronbach alpha for moral cognitive measurement is 0.748.

Meanwhile, ethical choices section had comprised of three (3) unethical hypothetical scenarios. The students were required to state their approval (disapproval) in two respond modes - (1) the behavior can be done or (2) the behavior cannot be done), as well as the reason for such selection. The three unethical scenarios comprise of situations presented as follows:

Case 1:

Mr. X used the office photocopy machine to make 5 copies of his personal documents for his family house mortagage.

Case 2:

Mr. R was sent as Melor Sdn Bhd representative to discuss on a new bridge project with company XYZ. The discussion is successful and agreement had been signed between company XYZ and Melor Sdn Bhd. Mr. R take the opportunity to promote XYZ to purchase construction material from company RPK in which owned by his brother. Such construction material is known by Mr. R as necessary in the project.

Case 3:

Mrs. Z make an extra claims compared than the real expenses amount. She said the action was to compensate her rights due to the failure of the firms to pay bonus despite making great profit for consecutive years.

Finally, the demographic part includes demographic variable including a question on "the most influential source of moral education throughout individual life experience". The data has been analyzed descriptively. In order to facilitate the analysis of the open-ended respond, all the respondents' answers were re-coded into a specific dummy classification.

ANALYSIS

Sample Characteristic

Table 1 presents the sample characteristic of the respondents. The male students had composed 46 percent of the respondents, while 54 percent are females. About 68 percent of the students have working experience in various temporary jobs.

Table 1 Respondents' Characteristics

Sample characteristic N= 28	Frequency	Percentage (%)
Gender:		
Male	13	46
Female	15	54
Working experience:		
Yes	19	68
None	9	32

Further analysis is elaborate in particular sub-topics as follows.

Moral Cognitive

Based on the information in Table 2, the highest mean for moral cognitive level is the conventional level (mean=30.14, δ=8.72), next is post-conventional (mean=27.86, δ=2.70) and pre-conventional (mean=24.22, δ=5.19). Therefore, most students have reached the satisfactory level of moral cognitive as showed by respective mean value. The median value for each conventional and post conventional is 28, while pre-conventional median is only 24.

Table 2 Moral Cognitive Development

N= 28	Pre-conventional	Conventional	Post Conventional
Mean	24.22	30.14	27.86
Median	24.00	28.00	28.00
Standard deviation	5.19	8.72	2.70

The one-sample Kolmogorov –Smirnov result in Table 3 indicates that the students are similar in their pre-conventional and conventional moral cognitive level (Kolmogorov-Smirnoz Z = 0.519 and 1.273, p= 0.950 and 0.78; p> 0.05). Nevertheless, there is significant differences among the students in post-conventional level (Kolmogorov-Smirnoz Z = 1.589 and p= 0.013). Thus, the result shows that the students are not significantly different in pre-conventional and conventional moral cognitive level, but few of them may have reached a significant level of post conventional cognitive moral development compared to others.

Table 3 One Sample Kolmogorov-Smirnov Test

N= 28	Pre-conventional	Conventional	Post Conventional
Kolmogorov-Smirnov Z	0.519	1.273	1.589
Asymp. Sig. (2 tailed)	0.950	0.078	0.013
Test distribution is normal			

Therefore, it shows that most students have achieved the minimum level of early adults' moral cognitive level when they tried to match behaviors according to the normal expectations of their immediate family, organizations and community.

Priority in Students' Source of Moral Cognitive Development

Most respondents had chose "parent" as the most important source for their moral character development. About 93 percent ranked "parent" as the most influential (rank = 1) moral source throughout their life experience (see Table 4). Meanwhile, another 7 percent ranked "parent" as the second and third priorities. Thus, it proves that parents play major role to instill moral and ethical cognitive development throughout their child upbringing.

Table 4 Description of Priority of Development of Moral Character: Parents

Priority rank	Percentage (%)	Cumulative percentage (%)
1	93	93
2	3.5	96.5
3	3.5	100

"Religion and moral teachers" have been ranked by 61 percent of the respondents as the second important source in their moral character development (Table 5). Meanwhile, "schools and academic teachers" is ranked as number 3 by 54 percent of respondents, followed by religious institutions (61 percent) and friends (92%).

Table 5 Description of Priority of Development of Moral Character: Religion/Moral Teachers

Priority rank	Percentage (%)	Cumulative percentage (%)
1	3.6	3.6
2	60.7	64.3
3	25.0	89.3
4	10.7	100

Friedman Test had been conducted on 4 most important priorities as ranked by the respondents, comprise of parents, schools, religious teachers and religious institutions. Table 6 indicates the means rank of each top four priorities selected by the respondents.

Table 6 Mean Ranks Result for Top Four Moral Teaching Sources

N= 28	Mean rank
Parents	3.89
School and Academic teachers	2.00
Religion/moral teacher	2.61
Religion institutions	1.50

Based on Table 6, we found the mean ranks for "parents" is the highest among other choices (mean = 3.89). The second highest mean rank is for "religion/moral teachers" with a mean= 2.61. In addition, Friedman rank test result in Table 7 has also shows significant differences among the importance of the top four moral sources (X^2 (3,N=28) = 53.786, p=0.000, P<0.05).

Table 7 Friedman Test Result

N	28
Chi-Square	53.786
DF	3
Asymp. Sig.	0.000

Although most moral inputs were received during the elementary school level, the most influential effect of moral education to individual character happened during their tertiary education level (see Table 8). In Table 8, mode 1 represent of the "elementary school", while 3 represent the "tertiary- college & universities". A cumulative percentage of 71 % indicates that the most moral inputs are received during at the elementary and secondary schools. Meanwhile, 39 percent of the respondents agree on the response that the most influential stage of moral education to develop their moral character is at the tertiary education level.

Table 8 Most Influential Ethics Education

N=28	Most moral input received	Most influencing of moral education
Mode	1 (elementary)	3 (tertiary)

Respond to Ethical Scenarios

Table 9 shows students' respond for each of the unethical scenarios. Based on Table 9 information, we found most students evaluated the conducts in the three scenarios as unethical. Surprisingly, quite a big number of respondents (43 percent) had evaluated conduct in scenario 2 as "can be done and not a big issue". Besides, 36 percent of the respondents also consider issue in scenario 1 and 3 as "can be done and not a big issue".

Table 9 Respond on Ethical Scenario

Sample characteristic N= 28	Frequency	Percentage (%)
Case 1		
Can be done & not big issue	10	36
Cannot be done	18	64
Case 2		
Can be done & not big issue	12	43
Cannot be done	16	57
Case 3		
Can be done & not big issue	10	36
Cannot be done	18	64

The reasons for approving the behavior are shown in Table 10. As shown in Table 10, there are 3 themes found to be the underlying reason for unethical behaviors approval. The themes comprises of immaterial losses, accelerating project efficiency and acquiring employees right.

Table 10 Reasons for Approving Unethical Behaviors.

Case	Most given reason for conduct approval	Themes
Case 1: Mr. X used the office photocopy machine to make 5 copies of his personal documents for his family house mortgage.	1. The conduct does not jeopardize the company's performance. 2. The conduct does not affect the company at all. 3. It is not significant because only for 5 copies of document are made.	The immaterial losses or minor effect for companies.
Case 2: Mr. R was sent as Melor Sdn Bhd representative to discuss on a new bridge project with company XYZ. The discussion is successful and agreement had been signed between company XYZ and Melor Sdn Bhd. Mr. R take the opportunity to promote XYZ to purchase	1. It can expedite the process of getting the construction material and project implementation. 2. The project need the particular construction material, thus it is helpful to provide a suggestion.	Accelerating project efficiency.

construction material from company RPK in which owned by his brother. Such construction material is known by Mr. R as necessary in the project.	3. Mr. R is only promoting and suggesting to XYZ and the final decision is in XYZ management. Therefore, nothing wrong in the action of promoting and recommending specific companies.	
Case 3: Mrs. Z make an extra claims compared than the real expenses amount. She said the action was to compensate her rights due to the failure of the firms to pay bonus despite making great profit for consecutive years	1. The bonus is employees' right.	Acquiring the employee's right.

The cross tabulation between ethical respond intensity and moral cognitive indicates conventional cognitive has dominated all choice of ethical respond (Table 11). Therefore, it shows that most senior students in this study had achieved satisfactory level of moral cognitive development and conventional cognitive level has influenced their ethical consideration. The current cognitive moral development had resulted from moral teachings that mostly obtained during the elementary and secondary schools and mostly acquired from parents and religion teachers.

Table 11 Cross Tabulation Between Moral Cognitive Types & Approving Unethical Behavior Trends

	Lean towards approving the unethical behaviors	Lean towards disapproving the unethical behaviors	Totally disapprove the unethical behaviors	Total
Pre-conventional	2	3	0	5
Conventional	4	8	6	18
Post-conventional	1	3	1	5
Total	7	14	7	28

DISCUSSION

This study provides descriptions about the cognitive moral development (CMD) among a small group of university students. The students CMD is emphasize due to the closeness of the group to future employment market. The students will soon merge into various organizations and positions as well as to exercise discretions that may involve ethical issues. Thus their CMD is particularly important to ensure more responsible judgment regarding critical ethical issues. As far as Malaysian education system is concern, most moral inputs are being cultivate during basic education level comprises of the primary and secondary school level. The school syllabus has includes moral and religion subjects to be taken by all school students. Although the religion and moral subjects are compulsory to be taken by school students, its' emphasize has been relatively minimal compared

to the academic subjects. Nevertheless, the existing syllabus has contributes positively to the development of students' moral character and pave way to the attainment of conventional moral cognitive level. Besides, the parents' role as the moral developer of their children is indeed important. This has been supported by our finding which show that parent and religion teachers serve as the most influential moral source in the students' life. The attainment of conventional level of CMD reflects that most of the students are "good apples", as they are able to appreciate the values of their groups, such as one's family, peer group and larger group such as organization's and nations expectations. In order to ensure effective moral cognitive development for our future human resource, all significant parties such the parents, religion & moral teachers, schools and religion institution must participate in the moral education programme as suggested by Marshall et al. (2011).

Despite satisfactory level of cognitive moral development (CMD), our finding indicate worrying trend that may impose negative consequences to future community system. The respondents responds shows that 43 percent of the respondents evaluate conduct in scenario 2 as can be done. Besides, it is surprising to find out that 36 percent of the respondents also consider issue in scenario 1 and 3 as "can be done and not a big issue". Some of the students had associates the unethical conduct approval to reasons that contain the element of "subjectivity" and "relativism". For example in case 1, despite viewing the conduct as basically unethical, approval was given due to the consideration of amount involved. The amount was seen as immaterial, thus approval was given to the transgression of stewardship principle. In case 2, the reason had been linked to accommodating project efficiency. Such reason may lead towards approving more serious unethical behavior such as lack of integrity and bribery due to prioritization of the technical justification. Meanwhile, respond in case 3 show the tendency to exercise self-corrective action to the perceived injustice. Although the responds had represent students' opinion regarding unethical conduct of other people and not of theirs, the reasoning pattern had exposed the potential of self-adjustment or self-accommodating act in ethical conflicts. As far as universal principle reasoning is concerns, changes are needed to develop post-conventional moral cognitive ability among the university students prior entering the job market.

The respondents' reactions had also proves Jones Issue-Contingent Model (1991) regarding the influence of magnitude of consequence derived from particular unethical behaviors or decisions on human ethical reasoning. In case 1, most respondents had included reason such as "the amount is too small and cannot bring negative impact to organization" or similar meaning as their approving comments. Besides, social consensus within the locals practice may also influence moral intensity of particular behaviors. For example in case 1 the behavior of using the organization's immaterial assets had been frequently occurred in most organizations. Thus, it mitigates the "bad" image of such behavior as most people recognize it as a normal course of behavior in workplace.

Limitation & Suggestion

The first limitation of this study is it only involved senior students of the Development Science Programme. Therefore, generalizability of the study is limited and future studies are encouraged to replicate this study to larger samples from various programmes and faculties. The second limitation, this study only included three ethical scenarios to capture students respond on ethical evaluation in specific context. As far as exploratory study is concern, the design is sufficient to determine relevancy of phenomenon for further explanation. However, future studies are encouraged to identify more and diverse ethical issues as this study had only included minor ethical issues such as using minor company assets. More serious issues such as abused of power and organization theft can be included in future studies. Besides, future study can also develop a more holistic framework that include independent variables such the moral cognitive level and other individual factor simultaneously to explain better on ethical behavior phenomenon among future professionals.

CONCLUSION

This study attempts to evaluate the moral cognitive ability among university students. Our finding indicates that most respondents had reached the conventional level of moral cognitive. It represent that current moral education system especially at the school level have been effectively instilled the values. We also found that parents and religion teachers have become the influential source of moral character development among the students. Nevertheless, the reasoning of the students in their moral judgment indicates worrying pattern. The reasons indicate some element of subjectivity and relativism to endorse some unethical behavior (actions) as permissible due to technical and utility justification.

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"Excellent" or "Outstanding"-- A Case Study of My Son's Intercultural Adaptation

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Abstract

One word is not only a symbol of language, but also reflects the cultural values where people live in a society. It is no doubt that different language reflect different cultural values. Hence, it is extremely crucial for oversea students to understand some fundamental knowledge about the relationship between language influence and cultural value in their intercultural adaptation and communication. Only in this way, the oversea students will be adapted to a new society and a new culture, and show their own academic abilities on some competitive occasions including applying for their graduates or post-graduates in colleges and universities. Therefore, the author will take his son's application for Massachusetts Institute of Technology (MIT)'s a post-graduate as a case, comparatively analyzes and discusses that the concept of cultural values directly affects applicant, especially owing to the relative function between language modification and cultural impact, and finally focuses on the intercultural adaptation's influence on application, so as to success in his or her study career in a new culture.

Keywords: language, culture, intercultural communication, application letter, intercultural adaptation, intercultural communication competence

1. Introduction

"Language and culture, intrinsically dependent on each other, have evolved together through the history. Their mutual interdependence can find proof in the rise of civilization, the development of writing and human communication."(Dai, 2008) In intercultural communication, people with different cultural backgrounds should write some things to have verbal communication with native people. To some extent, the verbal communication is not only difficult thing, but also a fundamental method in intercultural communication.

Thus, any foreigner wants to communicate with native people, He or she should have a good knowledge of the target language and target culture. He or she will be adapted to a new society and a new culture. In this way, any foreigner will show his or her own ability on some competitive occasions, so that he or she will know and understand how to write quite well for special purpose, such as for application letters including personal statement, resume and et al. Every year, many Chinese students of undergraduates and graduates apply for their graduates or post-doctoral post in American universities. If they show their academic abilities properly in applicant process, they will be admitted by the American universities. The author will takes his son's application for Massachusetts Institute of Technology (MIT)'s a post-doctor as a case, comparatively analyzes and discusses that cultural values affect applicant, especially the relative function between language modification and cultural impact, focuses on the intercultural adaptation's influence on application, so as to success in his or her study career in a new culture.

2. A Case

One year ago, my son would finish his PHD in an American university, and then he wanted to continue his study for post-doctor. One day, my son finished his application letter and resume for his post-graduate in MIT, and then sent them to me by email, and asked me to point out some shortcomings on the application letter and resume he made.

After reading, I found that my son had made greater progress in English writing during five years' study in American university for his doctorial degree. At the same time, I couldn't point out any big mistakes on his application letter or resume.

However, it was only one adjective word which was used to modify himself in one sentence that I didn't agree to. He wrote in this way, "I am an outstanding student on the field of xxx research.

The word is "outstanding" to be used to modify himself as "an outstanding student". The word "outstanding" is only used to modify some famous persons including statesmen, singers, artists and scientists. I just judge the usage of this word "outstanding" in Chinese cultural outlook. Everyone should be modest to the others, the others would respect him or her. No one could say that he would be an outstanding person in some field or in a country. If so, no one could like or respect him or her. He or she will be regarded as an arrogant person. Due to this reason, Chinese people never introduce themselves with the powerful modification words or expressions. If do so, the person will be looked down upon by the other.
Considering that I thought of, I called my son by phone and hoped that he would change word "outstanding" into the word "excellent". My son did not agree to my suggestion and told me that if you were not confident and thought you were the best one person who was qualified for the post-graduate post, and who could believe that you were the best qualified person for the post-doctorial post. Particularly, American tutor always thought the applicant's confidence, academic ability, potential competence as one of important requirements. Later, my son still persisted in his position and hand on his application letter and resume. Finally, my son luckily got the admission letter to accept the post-doctorial post in MIT. Now, he has worked in MIT for near a year.

3. Analysis and Discussion

From the above case, we can easily find that the opinions between the author and his son are apparently different from their diversity cultural values. Though the author and his son were born in China, their cultural outlooks have had a big difference. It is necessary for us to analyze and discuss about such a big different from Chinese cultural value and American cultural value. Maybe, we will realize that person lives in a new culture, adapts to a new culture and finally accepts a new culture. His or her cultural value will be altered with the gradual intercultural adaptation.

Therefore， "culture has an impact on language at various levels. In verbal communication we find differences at phonemic, lexical, syntactical and discourse levels. Phonemic and syntactical variations are often taken for granted. At the lexical, pragmatic and discourse levels, there are a lot worth studying concerning intercultural communication."(Tou, 2011)
As a result, the author will further analyze and discuss the above the case that demonstrate the influence of culture on verbal communication.

3.1Language Reflection and Cultural Values

Word is " a single unit of language which means something and can be spoken or written"(Hornby, 2004). To some extent, word is just a symbol of language, but language reflects the environment in which we live. We label things that are around us. Sometime words have different connotative meanings because of the different geographical environment. In addition to the environment, language also reflects cultural values. Language is a mirror of culture, because language reflects human relationships and the way the society operates.

Nevertheless, different languages reflect different cultural values. At the same time, language is a reflection of culture, and culture is a reflection of language.

In China, traditional cultural values attached great importance to collective interest. The Chinese value of collectivism was cultivated by the forceful tie of the patriarchal relations and the culture of ideology and institution that gave prominence to centralization and unity. The interest of the society, the country and the family was always counted number one while that of the locality, the part, or the individual sometimes was ignored. Individuality gave way to universality. The values asserting collective interest fostered in China the spiritual tradition of patriotism national development, abandoned individual interest, even disregarding their own lives and families, to go through fire and water for the cardinal principle of national interest. The spirit embodied by them has been adored generation after generation which has finally been condensed and crystallized into the spiritual tower of Chinese nation. (Fan and Yu, 2011)

To some extent, the Chinese characteristics "lead to specific behavior, such as the avoidance of direct "no", the walking away from potential argument, conflict or confrontation, a low profile, the hiding of one's strengths, the depreciation of one's success. (Yan and Tao, 2012)
In America, however, the stress of cultural value is laid on equality of opportunity, individuality and personal effort instead of conformity and control. Everyone knows that The Declaration of Independence says," All men are created equal." The American belief in equality of opportunity is illustrated by the Horatio Alger myth. "These popular 'rags-to-riches' stories exemplified the American Dream- the belief that any individual, no matter how poor, can achieve wealth and fame diligence and virtue. For many immigrant Americans, this dream became reality. At the same time, American initiative to experiment was encouraged by a generally optimistic out look. The typical American believed in trying something new in an attempt to make life better. He had a firm faith in the possibility of progress, This attitude was based on his own and his family's past experiences.(Yan and Tao, 2012.p.7)

Contrary to the Chinese people, Americans are more individualistic. As George Kateb states, "The essence of all the revisions of human ties is a movement toward allowing individuals to make up their world as they go along. This is a principal aspect of individualism, and the hidden spring of self-centered behavior."(Kateb, 1992)

As Edward T. Hall points out, "culture hides much more than it reveals, and strangely enough, what it hides, it hides most effectively from its own participants". And he also says that "culture controls behavior in deep and persisting ways, many of which are outside of awareness and therefore beyond conscious control of the individual."
Although each of us has a unique set of values, there also are values that tend to permeate a culture. These are called cultural values. Cultural values generally are normative in that they inform a member of a culture what is good and bad, right and wrong, true and false, positive and negative, and the like. Cultural values define what

is worthwhile to die for, what is worth protecting, what frightens people and their social systems, what are considered proper subjects for study and for ridicule, and what types of events lead individuals to group solidarity. Cultural values also specify what behaviors are of importance and which should be avoided within a culture. Values represent a learned organization of rules for making choices and for resolving conflicts.(Xu,2012)

China and America have their own different cultures, and cultural values which greatly determines their language expressive ways and communicative ways. It is cultural values' difference that gives rises to many miscommunications. Both cultural values have some good qualities that are worth learning from. Thus, we should raise awareness of "the other culture "to build bridges across misunderstanding among different cultures. Furthermore, we should also respect our cultural differences in cross-cultural communication and improve our communicative abilities including verbal communication and nonverbal communication in order to avoid unnecessary misunderstand and conflict in intercultural communication.
From the above case, it fully evidences that someone will success in intercultural communication if he or she does any things by its own cultural values in verbal communication and nonverbal communication of a new cultural environment. If not so, person must fail in intercultural communication.

3.2 Intercultural Adaptation and Intercultural communication

Through the above case, we can easily find that any foreign students have lived in another country for some time and have known some fundamental cultural knowledge of the another country, especially have known how to adapt to a new cultural environment. Also, the foreign students have accepted a new culture and have known how to show his academic ability to his future tutor properly and then made their applying letter and resume be satisfied with requirements from both university and the tutor. American culture has gradually changed my son's and other foreign students mindset. They have really known how to think, behave and realize their own desires or dreams in an American way.

3.2.1 Adapt to a new culture

When people sojourn in a foreign country, some of them can adapt well the new environment within a short period of time, while others find the new environment to be a nightmare. One of the main reason why some find new environments problematic is that must familiar symbols they use in daily life have changed suddenly in the strange culture. They then begin to reject, consciously or unconsciously, the new ways of life which cause discomfort, withdrawal from the culture, and fear of contact with people. (Chen, 2010)
Day-to-day living in another culture is undoubtedly an educational experience. While traveling and living abroad people learn second language, observe different customs, and encounter new values. Many people who have lived in other countries feel that exposure to foreign cultures enables them to gain insight into their own society. When facing different values, beliefs, and behavior, they develop a deeper understanding of themselves and of the society that helped to shape their characters. The striking contrasts of a second culture provide a mirror in which one' own culture is reflected. (Xu, 2012,307p.)

The more different ways of experiencing life available to a society, the more resources it has for meeting adaptive challenges. It is believed that one of the United State's greatest strengths is its ethnic diversity, for they have adaptive resources from peoples all over the world.(Zhang, 2008)

Facing a new culture, people should keep an open mind, not only being tolerant of others but also learning from others. Thus, positive self-concept and high levels of self-esteem are critical factors in foreign students' development, motivation, and academic success. Theorists distinguish between individual and academic self-concepts. Individual self-concept refers to how students see themselves—their cultural, racial, or national origins; their religious and gender identities; as well as other significant elements of personal identity. Academic self-concept refers to whether or not students see themselves to the educational process, students need to be excited about what they are learning and confident of their ability to learn. They must also see education as a critical component of an American Dream that they can realistically hope to achieve.(Morrison, 2003)

Positive cross-cultural learning experiences typically:
·involve change and movement from one cultural frame of reference of another;
·are personally and uniquely important to the individual;
·force the person into some form of self-examination;
·involve severe frustration, anxiety, and personal pain, at least for a while;
·cause the person to deal with relationships and processes related to his or her role as an outsider;
·encourage the person to try new attitudes and behaviors;
·allow the person to compare and contrast constantly.

The strong, creative person can deal with culture shock positively, instead of sinking into steady complaints about the culture, wallowing in very real physical ailments, or running away at the first opportunity. Culture shock can become an opportunity for growth.
Only in this way, to make the intercultural interaction productive, one needs to have the ability to construct meaning and rapport with people from different cultural back grounds through appropriate and effective use of verbal and nonverbal language.
By this time, the person is able to accept both the similarities and the differences between his home culture and the new culture. He is becoming more sensitive to local people and as a result his relationships with them are becoming warmer and more personal. The person has added important new skills to his cultural software and has some confidence that he can deal with new situations as they arise. Life is definitely becoming more comfortable. (Davis, 2010)

4. conclusion

Now, we can easily receive the findings through our analysis and discussion about the case. Any foreign students intend to success in their studying career. They should know that the application for different degrees at different learning levels, are a complicated process, meanwhile, it is an important intercultural communication. Thus, it is crucial for foreign student to know some fundamental knowledge about the relationship between language influence and cultural value, and intercultural adaptation and intercultural communication. Especially, they should know that it is not enough for them to learn a foreign language, they must learn culture and do culture, so that they will satisfy with the requirements not only from colleges and universities but also from a foreign society.
As a result, knowing a new culture, especially a new cultural value, it is more important than just learning a language whatever, people have verbal communication and nonverbal communication. Learn, and experience foreign culture. In this way, the foreign students will adapt to a new culture very soon and really master local cultural history and customs well. Finally, the foreign students' mindsets, outlooks and behaviors will match a new culture.

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